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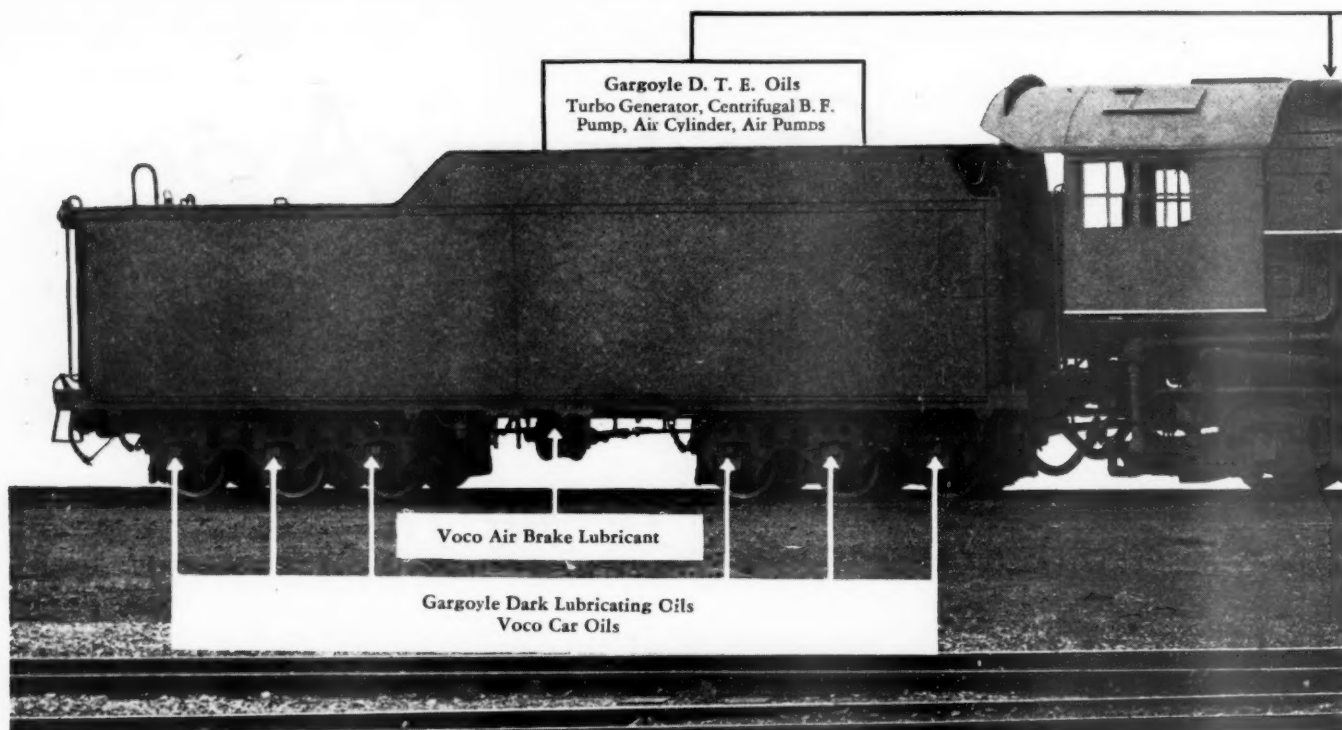
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Railway Age

Vol. 89, No. 17

October 25, 1930

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A Railroad Convention Needed

THE greatest immediate need of the railroads is for a convention of their chairmen and presidents which will last not merely for one day but long enough for the consideration of the menacing conditions and problems with which the industry is confronted, and for decision upon definite policies for dealing with those conditions and problems. As is always the case, some railways are doing better than others; but with the entire industry earning at the annual rate of only about $3\frac{1}{2}$ per cent in spite of drastic retrenchments, it is evident that all railways are suffering from the same causes, and that solution of the problems presented to each railway can be found only through conference and united action by all railways. Executives are very busy dealing with the special problems of the individual lines; but the importance of the general problems confronting the entire industry to each individual railway is greater than the importance of its own special problems to any railway.

The Problem of Competition

The most important problem with which the industry is confronted is that of competition. This competition is partly between the railways themselves and partly from other means of transportation. The problems presented by the competition of other means of transportation demand unusual consideration, partly because they are new, and partly because their importance is increasing with great rapidity.

What attitude should the railroad industry assume toward motor coach and truck competition? Should the railways advocate increased taxation of these motor vehicles for the purpose of depriving them of the indirect subsidies they now receive from the public because they are charged inadequately for the use of the highways? Should they advocate such regulation of highway transportation as is applied to the railways? Should they advocate regulation of the length, weight and speed of motor coaches and trucks because of their destructive effects upon the highways and the dangers to which they expose private motorists? Should the railways adopt pick-up and delivery service by the use of trucks to meet the competition of trucks in carrying freight from the door of the shipper to the door of the consignee? Should the railways reduce their day

coach passenger fares to meet the competition of motor coaches? These are some of the questions the railways should answer for the railroad industry by adopting a definite policy regarding highway competition.

The Association of Railway Executives has definitely adopted a policy of opposing government ownership and operation of the barge line of the Inland Waterways Corporation. Many railway men have discussed the question of extensive development of inland waterways; but the railroad industry has adopted no policy regarding it. Should the railroad industry not adopt such a policy? The expenditure of public money upon the improvement and maintenance of inland waterways involves the subsidizing of water carriers for the purpose of enabling them to divert traffic from the railways. The development of inland waterways is expected to result in reductions of freight rates, and is certain to result in increases of taxes. Should not the railways adopt a policy of insisting that no expenditures shall be made by the government upon any river or canal unless it has previously been determined with reasonable certainty that the resulting reduction of freight rates will exceed the resulting increase of taxes? Why should the railways offer no opposition to a waterway policy which is economically unsound, when its effects will be to cause indefensible increases of public taxation and diversion of traffic from the railways which will both reduce their earnings and their ability to give employment?

Regulation of Rates

The struggle over regulation of railway rates still goes on. Section 15-A of the Transportation act provides that rates shall be so adjusted by the Interstate Commerce Commission as to enable the railways to earn a fair annual return upon a fair valuation, and that one-half of the annual return in excess of six per cent earned by any railway shall be recaptured by the government. The Interstate Commerce Commission has never carried out the mandate of the rate-making provisions. At the same time, it is taking steps to recapture earnings from the more prosperous railways. The Howell bill, which is pending in Congress, would change the basis of rate making from a fair valuation to a "rate base" previously unknown to our law. What

attitude are the railways going to assume toward Section 15-A and the various proposals to change it?

These are but some of the important questions presented for consideration, the answers to which will determine largely the future of the railroad industry.

The railroads are favored by certain conditions at the present time. Public sentiment toward them was never more friendly. All over the country there are indications of the development of a public sentiment hostile to such use of the highways by motor coaches and trucks as is now being made. Railway labor leaders and employees are beginning to realize that whatever deprives the railways of traffic also deprives railway employees of their work, and are manifesting a strong disposition to rise up against the kind of competition to which the railways are being subjected.

Never did the railroads need a definite policy for the entire industry as they do now. Never was there a time when they seemed more likely to get for such a policy the support of their employees and the public. Such a policy can be adopted, however, only by their chief executives acting in unison. There is great need for a nation-wide educational campaign regarding the situation and problems of the railroads; but their spokesmen cannot have any policy to advocate for the industry until the industry has adopted one that the entire industry will stand behind.

On every hand railroad officers are heard saying that the railroad industry is drifting toward disaster. There need not be any such disaster. It can be prevented by the natural leaders of the industry assuming its leadership, and seeking the support of all those who would be willing to make their contributions toward the solution of the railroad problem, but many of whom do not understand the present situation, and therefore do not know how serious the problem is. The railroads must decide definitely what they want and need, and then begin a campaign to get it, before they will stand any chance of getting it.

I.C.C. Sets Dates for Motor Transport Hearings

THE Interstate Commerce Commission has announced the places and dates for the hearings which it will hold in connection with its docket No. 23400, "Co-ordination of Motor Transportation." The hearings will open at St. Louis, Mo., on November 17, before Commissioner Brainerd, and Examiners Flynn and Stephan, followed by sessions at Kansas City, Mo., Dallas, Tex., New Orleans, La., Atlanta, Ga., Detroit, Mich., Boston, Mass., New York, Chicago, St. Paul, Minn., Seattle, Wash., Portland, Ore., San Francisco, Cal., Los Angeles, Denver, Colo., and Omaha, Neb. The final hearing will be held at Washington, D. C., on March 4.

In the order of the commission launching its investi-

gation of the co-ordination of motor transportation with other forms of transportation, the commission announced that its purpose was to determine a basis upon which to make recommendations to Congress with respect to "such legislation as may be necessary or desirable to accomplish further or more efficient co-ordination." During the summer, the commission issued to all carriers subject to the Interstate Commerce Act a questionnaire which required the submission of information in exhaustive detail concerning the present highway operations of the railways and the manner in which these operations are carried on. The replies to this questionnaire have been filed with the commission and are now in process of tabulation.

What the outcome of this investigation will be, no one can say at this time. Proper co-ordination of railway and highway transportation is a subject of lively interest, however, and it is not too much to expect that the commission's investigation will have an ultimate effect favorable to continued sound progress along this line. It may be pertinent to wonder, however, whether Congress will pay as little attention to the commission's recommendations in this connection as it has thus far paid to the recommendation of the commission two years ago that legislation be enacted providing for the regulation of interstate motor coach lines.

How Stop the Decline in Passenger Revenues?

IF there could be any assurance that the volume of passenger traffic would touch bottom this year or next year, and thereafter remain constant or begin once more to grow, then its status would not constitute such a serious problem for railroad managements. Unfortunately, however, this assurance cannot be given. The one proposal for dealing with the situation that seems likely to succeed is that of providing lower priced accommodations. This expedient might possibly have the immediate effect of reducing gross revenues—although it might very well bring in sufficient new business not to do so.

Whether or not a reduction in the rate for coach travel or the provision of other accommodations at a lower price would have an immediate adverse effect on revenues, however, is not the vital question, which is—Would the change in all probability put an end to the downward trend of traffic? If that question can be answered in the affirmative, then an immediate loss of revenue would appear to be relatively unimportant. If the trend continues as it has in the past few years, the revenue will be lost anyway. Arrest the downward trend and start it upward again, and the problem will solve itself regardless of immediate revenue considerations. But let the trend continue as it does, and the situation remains acute notwithstanding the admitted magnitude of present revenues.

But would rate concessions arrest the downward trend?

That is a question which no one can definitely answer. Experiments such as those in the north and south service on the Pacific Coast appear to give an affirmative answer, but still further experiments are needed in various sections before a definite conclusion can be reached.

One of the great difficulties under which the railways operate is the necessity for uniformity in service and charges, and the consequent limitation on experiment. But does not the present situation demand that this inherent burden be lightened wherever possible to permit and even encourage those roads which are willing to experiment, to do so? If the passenger traffic problem is indeed without a solution, then the sooner the railroads know that fact and base their policies upon it the better for them. On the other hand, if there is a solution to be found, does not sound economics demand that every effort be bent toward finding and applying it as quickly as possible? To experiment may be dangerous, but to fail to do so is even more so.

Railway Employment

THE number of persons employed by the railways in August was 1,514,366. This was 245,000 less than in August, 1929, and was the smallest number reported for any month since monthly statistics have been kept, excepting July, 1922, when the number of employees was suddenly reduced by the beginning of the nationwide strike of shop employees. The average number of railway employees in the first eight months of this year was 1,554,552, or 126,700 less than in the first eight months of 1929. The fact that the reduction of employees was almost twice as great in August as it averaged during the first two-thirds of the year illustrates how much more drastic the railways have been retrenching within recent months than they did in the early part of the year. In the early part of the year the decline in their traffic and earnings was comparatively small, but it has become steadily greater and retrenchments have increased accordingly. The average number of employees during the first two-thirds of this year was smaller than during any entire year since 1909.

The causes of the great decline in railroad employment within recent years are twofold. The decline of almost 127,000 in the first eight months of 1930 as compared with the first eight months of 1929 may be attributed to the business depression prevailing during the last year. The average number of employees in the first eight months of 1930 was, however, 318,000 less than in 1923. The total decline since 1923 includes the decline of almost 127,000 during the last year, and an additional decline of more than 190,000 that occurred between 1923 and 1929.

Prior to the last decade the number of railway employees constantly increased. In 1890 it was 750,000; in 1900 more than 1,000,000; in 1910, 1,700,000, and in 1920 more than 2,000,000. The increase between 1910 and 1920 was partly due to the substitution of

the eight-hour for the ten-hour day, but the large increases from 1890 to 1920 were mainly due to other causes. The reduction of railway employment within the last decade has been called "technological unemployment"—that is, it has been attributed to improvements in railway plants and operating methods which have increased the output of transportation per employee. The fact is, however, that the amount of transportation service per employee increased more before the war than it has since, and that there was more "under-technological employment" then than recently. In the six years ending with 1917, when the ten-hour day was in effect, the average annual output of freight transportation per employee increased more than 76,000 net ton-miles, and in spite of this the number of employees increased 133,000, while in the six years ending with 1929, the average annual production of net ton-miles per employee increased only about 49,000,—and nevertheless the number of employees declined more than 190,000.

The explanation of the increase in the number of employees prior to the last decade is to be found in the fact that both the passenger and freight traffic of the railways was rapidly increasing then, while the decline in railway employment within recent years has been due to the fact that passenger business has been rapidly declining and freight traffic has been increasing, even in periods of active business, only about one-third as much annually as formerly.

The decline in railroad employment has inflicted hardships on many railway employees. It has also had a bad effect upon business in numerous cities and towns throughout the country which are railroad division points or the locations of railroad shops. One of the principal causes of the decline in railroad employment has been the diversion of traffic to carriers by water and highway which are aided by the government in competing with the railways.

It is a remarkable fact that not only have railway employees not offered organized national resistance to government policies that already have thrown so many of them out of work, but that the business men of most "railroad towns" have been blind to the effects produced upon their own business by the diversion of traffic from the railways and the consequent reduction of railway employees. For example, there are many large towns and cities along the Mississippi river to which the purchasing power of railway employees is of great importance, and yet, with the outstanding exception of Clinton, Iowa, practically all of these towns and cities are favoring waterway development and the operation of the government barge line in spite of their plain tendency to reduce railway employment.

The diversion of traffic from the railways to other means of transportation not only impairs the earning capacity of the railways, but by reducing the purchases made by them from manufacturers and the number of persons employed by them, it has adverse economic effects of far reaching importance.

Unite and Fight, *Now!*

By the Hon. Thomas F. Woodlock

Contributing Editor, Wall Street Journal—
Formerly Interstate Commerce Commissioner

WHEN one assumes to talk about the railroads, the law and the public, he takes in a good deal of territory, and I am going to be very brief and as direct as I can in what I have to say about them. And we dismiss the law pretty briefly. The law is no doubt full of defects. It has one very serious fundamental defect, the recapture clause. It has many other minor defects. It is not in a condition where it can be made to work very satisfactorily. But, excluding the subject of recapture, the law as it stands can be made to work provided that the body to which is entrusted its administration really starts to work it in the spirit which the law, at least in part, expresses.

As regards the Interstate Commerce Commission, it would be very bad taste for me either to extol its merits or point out its defects, and therefore I will merely ask you to assume that it is very much as people regard it. We will consider it to be guilty of all the defects for which it has been criticized, and we will consider it to possess such merits as people are disposed to allow.

So we come to the railroads and the public. I am primarily a newspaper man. My business all my life has been trying to observe, correlate and relate facts as they are. Therefore, I speak now mainly as a newspaper man.

Serious Post-War Problem Promptly Solved

Seven years ago, after the war was finished and after the railroads had been given a little breathing space in which to pull themselves together after their very unpleasant experience in the war, railroad men faced the situation in a very noticeable and efficient way. They concentrated on plant equipment and operation, and I think nobody would be disposed to deny that in the matters of operating economies, greater efficiency, hard work, splendid team work, they have done a first-class job. You have only to look at the statistics of operation, of carloads, car-miles, ton-miles per car-day, fuel consumption per thousand ton-miles, and remember that each one of these results has been attained only by the most continuous kind of teamwork. It has always seemed to me that railroading is essentially a question of teamwork. In other words, unless every human being down to the man that sweeps up the country stations—if they are swept out—only if each and every one of them is on his toes all the time is the final net operating income for interest and dividends secured, and I have always maintained that the divi-

dends come from the half-hours saved in the yards, the extra half-ton in the car, the extra half-mile in the average daily car journey, and so forth. A first-class job and nothing short of it is what you must credit railroad management with in so far as operating and efficiency of plant is concerned.

Peak Year of All Time Was 1920

Notwithstanding that, what do we find? Take the traffic that was carried in the year 1920 (which was a peak year in the matter of freight up to that time, and has only been surpassed in slight measure since in freight, and which, taking freight and passenger together, was unquestionably the peak year for traffic in this country). Apply to it the full increase in passenger and freight rates which was made in the last half of 1920, so as to give that traffic and those rates their full reflection. We find that the net operating income in 1920, instead of being a negligible figure, would have come out somewhere around 1,150 million dollars, that being the fund from which interest and dividends are paid. In 1928, which was a year where freight business, if I remember rightly, slightly surpassed that of 1920, but passenger business had fallen off very severely (well over thirty per cent), under the operating methods at the time in force, the net operating income was approximately 1,177 million dollars.

In other words it was about the same as that which we have calculated would have been earned in 1920 if the full increase in 1920 rates had applied during the whole year. But meanwhile we find that there has been returned to the public as between 1920 and 1928 a sum of approximately 913 million dollars, representing the lower average ton-mile revenue and passenger-mile revenue which was actually in force during 1928; so that as between

1920 and 1928 the railroads maintained a net operating revenue, but only did so, having returned to the public over nine hundred million dollars in the lower average ton-mile and passenger rates, and at the same time paying 117 million more taxes. So there is a round billion of dollars which the public has benefited in 1928 as compared with 1920, as a result of this improvement in railroad operating efficiency during that time.

If I remember my figures, I think that operating expenses were reduced in that eight years by something like \$1,400,000,000, and 855 millions of that came from the reduction in force of 377,000 men. A reduction in payroll of \$855,000,-

Mr. Woodlock Points Out—

That traffic growth, which formerly overcame railroad difficulties, can no longer be depended upon;

That railroads' post-war problem was solved by operating economies—the traffic department is the key to the present one;

That further serious inroads into traffic are threatened;

That public sentiment is not unfriendly;

That closer attention of the railroads to the rate structure would aid the I. C. C.;

That there is less to be gained from railroad individualism than from joint action.

Note—The above is an abstract of an address delivered by Mr. Woodlock at a meeting of the New York Railroad Club on October 17.

Difficulties of an earlier day solved by constant traffic increase which no longer exists—Operating economies cannot continue forever—Railroads should disregard fear of regulatory disapproval and present a united front in facing their troubles, likened to war



Hon. Thomas F. Woodlock

000 was made by that means and the rest of the saving came from these other economies that I speak of.

But while there is never a final limit to teamwork, as everybody knows, there comes a point when further gains in any of these directions must of necessity be very small. We cannot expect, for instance, to increase the average miles per car-day another six miles in the next six or seven years. We cannot expect to increase car load and train load in a corresponding amount. We cannot expect to reduce fuel cost very greatly. So we are approaching a limit to the economies now obtainable in operating.

What does that mean? It means that we have a very serious problem. You all know that this year net operating income of the Class I carriers will fall well below one billion dollars, and there is apparently no sign yet that it has ceased declining. The problem now is a different problem, and my suggestion is that it be recognized and faced and dealt with in the way in which the operating problem was dealt with seven years ago.

The Traffic Department Has the Problem

I refer to two things particularly, and they concern the traffic end, and it is the traffic end of railroads today which imperatively requires attention. First I will talk about that which can be done by the railroads themselves without having to ask anybody's permission. You know nowadays there are very few things that a railroad president can do without having to go to Washington and get permission. If he has a cold, he can sneeze without being told he may, but really the only important thing that a railroad board of directors can do today without the approval of the Commission is to declare a cash dividend to their stockholders. That, at least, still remains within their full competence, but I can think of no other important act affecting the interests of a railroad for which permission must not be obtained from the Interstate Commerce Commission.

The competition for traffic between carriers today is as

keen as it ever has been in the history of the country, and I am inclined to think, in view of the restriction upon the acts that are legal by traffic officers, that it is much keener. In the good old days many things could be done. There were rebates that could be made, rates could be cut, and there was then what one could call "scope for talent" in the traffic business.

The result of this extreme competition among the railroads for traffic has been to generate a condition of mind, perhaps, which has made it very difficult for the regulating authority, even when it has the will to do so, to get from the carriers themselves the assistance which the carriers ought to be only too glad to yield in the matter of advancing rates.

When the Western Trunk Lines applied for a five per cent increase in rates some four years ago, they applied for a five per cent horizontal increase on the grounds of an emergency. Ever since the experiences of 1913 and 1914, and the first horizontal increases that were made by the director-general of railroads, and the big increases that were made in 1920, the defects and difficulties arising from horizontal changes in rates have become so manifest to the Commission that there is a great disinclination to operate on rates in that way unless the emergency be really serious. Those of you who followed the case will remember that the Commission decided there

was no such an emergency as would warrant a horizontal increase in the rates.

The suggestion was made that the carriers should come forward with definite proposals for increased rates on definite classes of traffic. The Commission was informally told that the carriers would come down to Washington with proposals. And, if I remember rightly, we were told that they would involve at least seven and probably eleven commodities. Well, they never came. The reason they did not come was that as soon as the important shippers found out that a thing of this kind was on foot, they went to the weaker railroads and told them what would happen to them if they consented to join

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5. An end to fear of regulatory authority as an obstacle to railroad initiative.
6. Fight! — intelligently, and under united leadership, all along the line.

in any such increase, with the result that no such proposals were received or have since been received by the Commission.

That was a great error—a great tactical error—because the situation at that time was such that had these proposals come from the Western Trunk Line carriers, as it was expected they would come, I am very certain that they would have been at least in part successful. But they did not come and the Western Trunk Line troubles, as you probably know, have thus far brought forth nothing but the very moderate increase in class rates, in the recent Western Trunk Line class rate revision. My estimate of the total gain to all the railroads concerned from that case is that perhaps eight or at the most ten million dollars will result. The Western Trunk Line figures are such that eight to ten million dollars is hardly a fair start.

Rising Traffic Formerly Removed Difficulties

Now what does a situation of that kind call for? It seems to me that it must be dealt with in very much the same kind of spirit as that in which a country deals with a war. I don't like the word "war," but the condition that confronts the railroads today in this country is, in my judgment, more serious than any that I have seen in the nearly forty years that I have been observing them. There are many reasons for that, but here is one of them. In the olden days I remember well the longest period of depression that we ever had in railroading, and that was the depression that followed 1893. In those days we knew—everybody knew in his heart—that we could count upon continually increasing business. It was the one thing which nobody questioned or doubted. Our Pennsylvania Railroad friends five and twenty years ago used to figure that their business doubled every ten years. I have heard Mr. Cassatt say that; I have heard Mr. Rea say that; and it was true. And what was true of the Pennsylvania Railroad was true of the railroads in general. They could always count on the rising tide of business to pull them out.

That is not the situation, I fear, today. We have several causes at work which are tending to flatten out very materially the curves of traffic upon which we used to rely with such confidence, and the unfortunate thing about it is that these causes are operating upon the traffic which is the necessary bread, almost, of the carriers. I am not talking of the ordinary fluctuations in agricultural business, but I am thinking of the coal traffic and the traffic in petroleum products. We are witnessing today the building of gasoline pipe lines at the rate of ten to fifteen miles a day by one company alone, the Phillips Company. The Phillips Company is planning an 880-mile gasoline trunk line from Texas to St. Louis and Kansas City. We know that the Standard Oil Company has for months been piping gasoline from the seaboard to the Ohio river. I believe, although on this point I am not absolutely certain, that other pipe lines are being cleared out for the same purpose.

The gasoline traffic, as every traffic man knows, is peculiarly good traffic for the railroad. So far as the consumer is concerned it can stand any rate you please. The consumer pays without whimpering a five-cent tax on gasoline per gallon in several states, and five-cents per gallon would carry gasoline from Tulsa to the Atlantic Seaboard, and leave several cents over per 100 lb. There is a tremendous business. I think the railroads own something like 285,000 tank cars, the greater portion of which are engaged in that business, and it is very profitable. It pays a splendid ton-mile revenue, and they are threatened with the loss of that business.

Then there is the question of coal traffic. We have

some reason to suppose that the rate of city growth—and, of course, the cities are the principal consumers of coal—is going to be slower in the future than in the past. The population experts are shaking their heads very seriously over the trends which they now discover in the census figures, and we are told that the maximum limit of population, if these population curves grow no worse (and they have been growing worse every year up to now) is a hundred and fifty millions. That is the probable maximum limit population in the United States, to be reached some time in about 1960.

Without pressing too much on the population part, there is the question of competitive fuel or competitive heat and power. You know what is taking place in the natural gas field. There is an enormous field of natural gas stretching pretty near from Florida to the Arizona border, and apparently an unlimited quantity of this gas to be drawn upon—unlimited so far as any present needs are concerned. That gas is now being piped from Texas gas wells to Denver. It is being piped to Chicago, and I understand that gas is coming into New York not only from West Virginia, but even ultimately from Texas.

Electrical Generation at the Mines

There is another threat to the coal end. We know the efforts that the electric power people are putting out to extend the zone of economical transmission of power. I am told that there is a special laboratory at Massachusetts Institute of Technology where that peculiar problem is being studied under very advantageous conditions, in this way; that they have a laboratory plant which perfectly supplies the place of field tests. In other words, they know that results obtained in that plant will be good in the field. We are moving closer all the time to the use of coal in central generating plants instead of in the great mass of home plants where most of it is burned now, and which furnish the mainstay of the coal traffic.

With all these conditions tending to flatten out the big revenue curves of the heavy traffic, with the descending operating expense curve also tending to flatten out, and the margin between the revenue and the expense curves tending to narrow as time goes on, manifestly a serious situation is ahead.

The first thing to do, it seems to me, is to squeeze out of the traffic departments of railroads, if possible, all unnecessary, uneconomical competition. I am not sufficiently versed in railroad practice to know whether all this off-line solicitation is warranted. There is not a great deal of money spent in it; probably 130 million dollars would cover all the traffic solicitation of Class I railroads. It is not so much the actual saving that I am insisting upon, but it is the effect upon the railroads' defense line against this ceaseless pressure from big shippers, who have learned to follow the principle of "divide and conquer."

Search Out the Low Spots in the Rate Structure

Nobody so far as I am aware in the railroad business has the time or the opportunity to really sit down and comprehensively study the regional rate structures with the object of finding out the low spots, the weak spots and the defective alignment of those structures. *I have been greatly disappointed myself in the last few years at observing the inability of the carrier executives*—I am talking with the utmost frankness, and not trying to dress the words up with any politeness—*of the inability of the railroad executives to act together in the really important matters for the large good of all of them, because they have yielded to the temptation to follow the smaller individual good concerned.*

I am not going to enlarge on that very much, but I can think of nothing in the world that would be more constructive right this moment, taking only the eastern region as an example, than would be the executives of the four great systems in the East, who for several years discussed the possibility of a four-party alignment in the East under the consolidation plan, again taking up the subject, and this time with the resolve that whatever the Interstate Commerce Commission might do, they at least would come before the Commission with a well-thought-out plan for the consolidation of the railroads in the eastern territory into four systems. What would happen to it before the Commission I don't know; I haven't even a guess; I cannot tell. But that is another affair. That the railroads cannot help. They have not and will not have done their full part in this matter until they themselves have arranged, agreed upon and worked out the matter among themselves.

The Railroads Need an Albert Fink

Many, many years ago we had here in the East a man who to my thinking was one of the very great railroad pioneering minds and characters of his day, and that was Albert Fink, and Albert Fink was the Trunk Line Commissioner in the 80's. In those days the railroads had not yet quite found the necessity for any kind of common action, but there were the beginnings of it with the settlement of the great Trunk Line rate war in 1885. Albert Fink was a man who in those days acted and thought for all the carriers in the region, and, *to come straight to the point, it is my deliberate opinion that at this time, now, this emergency calls for an Albert Fink in each and every well-defined traffic region in the United States.*

We have three great regions. We have the Eastern, Southeastern and the Western, but, of course, as you all know, there are certain well-defined sub-groups in the western region. We have the Western Trunk Line; we have the Southwestern, the Transcontinental and Mountain Pacific. And here in the East we have the New England group. It does seem to me that with the problems and the difficulties now piling up ahead of all the carriers, with the certainty that the general regional set-up of carrier systems is going to continue for quite a while yet (I don't believe that the traffic currents yet require inter-regional systems), it is necessary in order for the full protection of the whole situation that the railroads in each region find somebody to whom they can commit their common interests—a man to act for all.

Match Every "Complaint" Case with an I. & S.

That man should have with him a very highly expert—not necessarily large or very expensive, but a very highly expert—rate staff whose business it would be to study the spider web of rates covering that region, to know it from end to end, to find the weak spots, the low spots, know where they were, and it would be his business and the business of the carriers he represents to pretty nearly match every "complaint" case before the Commission with an I. & S. in the rate structure. Until something of that kind is done, this natural process of whittling away of rates is bound to go on. The Commission has every year, roughly speaking, not less than a thousand separate and distinct complaints against the rate structure (and the number is still growing year by year).

The rate structure is in a situation today where it cannot stand any more whittling. Reduction in rates

today is twice as serious as it was twenty years ago or would have been twenty years ago when the volume of traffic was still growing.

My whole point—speaking now from the carrier viewpoint—is that we are in a state of war. What happens in a war? In a time of national emergency, from the days of ancient Rome up to today, what have people done? They have always found a man and told him, "We are back of you, we will do what you say; go to it." Now why can we not find, if possible, an Albert Fink for the East, an Albert Fink for the Southeast, another Albert Fink for the Southwest, another for the Western Trunk Lines, and so forth, and organize the carriers in all those groups into a solid mass, so when Mr. Albert Fink in the East says paper rates are too low, no big shipper can go to any one road and say: "If you stand for that, you won't get any more traffic." In other words, the power of the shipper to stop that would be gone.

I talked this idea with some of the executives. They say, "Splendid; where is the man?" Of course there is a man. There must be a man, because always, in every real emergency, there always is a man. We have always found him in the case of war, and this is a case of war or its equivalent. I don't want to be either extravagant or pessimistic in these things, but I have never seen anything like the state of things today in my experience which covers nearly 40 years. It calls for the most stringent and vigorous methods.

Public Sentiment Not Unfriendly

Let us consider the public a minute. Many of us here, some of us old timers, can remember the anti-railroad sentiment, and there was plenty of it. There isn't anything of that kind today. You don't hear anybody talking about the railroads. It is only a Brookhart, or somebody of that kind, who ever takes the trouble to drag it into the political field and few pay any attention to him when he does it. The railroads have a better situation today before the public than ever. The public is slow to recognize and still slower to admit that anything is good. But the service that the railroads have given in the last seven years has been the main cause for the complete revolution in our manufacturing habits. Who hears today of any enormous stocks of material or inventories anywhere? There aren't any. The corporations aren't carrying inventories of consequence, and the reason is the railroad service has been such nobody needs to carry these things any more. Some of the manufacturers have been shortsighted enough to complain that they don't get orders ahead, but the smart ones know they get them all the time. It is the railroad that has done it. There isn't any real anti-railroad sentiment today.

I feel very certain, speaking from my best judgment as to the mind of my former colleagues, that the Interstate Commerce Commission would welcome a step of this kind on the part of railroads. It would make their job very much easier. It would help to show them where the weak spots are. And I am very safe in saying to you that the Commission doesn't want—the Commission is the last person to want—to pull the railroads down. It would immensely aid the Commission in its task.

Reduce Coach Rates—Improve Service

One other thing: War means fight. Now the railroads have been pretty nearly driven to their ultimate trenches in the matter of passenger business. The attack from the stage coach, which was "licked" a hundred years ago, but has now come back after a hundred

years for revenge, and the much more serious attack from the private car, on the passenger revenue of the railroads, have driven the railroads to the point where their backs are against the wall. Maybe the American public is not going to travel any more in the day coach, but my point is that you don't know that yet. The way to find out is to go down to the pre-war rate and give better coach service. Maybe people won't come back. But if they don't come back, what is the answer? The answer is that no authority in the world can continue to force you to render a service that the public has plainly stated it doesn't want. Until you have fought that thing out to the last trench you have not fought the fight.

Store-Door Delivery Imperative

Secondly, there comes the motor truck. I am not going to enlarge on that, but if there is anything certain in this work, it is that railroad transportation service has got to include pick-up and delivery, and the sooner we find that out and go to it, the better. That is the thing that has to be done, in order to find out whether the motor truck has taken business to keep. I haven't enough direct knowledge of the circumstances that have built up this motor truck business. I don't think it is a question of rates in many cases; I don't think it is a question of rates at all in some cases. I believe the trucks are taking business at rates higher than what the railroads would charge for the same service. It is a convenience. *Pick-up and delivery must come sooner or later, and now is the time to do it. I favor the policy of General Foch, in that famous dispatch where he was supposed to have said that his left was driven in, his right was broken, his center was heavily depressed, but that the situation was excellent and he was going to attack.*

Inland Waterways Reports Smack of Propaganda

There is this water transportation matter. We have a rather unsavory spectacle. We have the government of the United States conducting an inland waterway concern on the Warrior river and the Mississippi river, with the people's money. I don't object to the government making an experiment of that kind, but I think they should be scrupulously honest about it in the matter of figures and should not deal in propaganda. And I am bound to say the official reports made to the public smack far too much of this. I don't think the inland waterways company has been entirely fair to the public in its publications and in its statement of what it is doing.

Nevertheless, water transportation is very much in favor at present. We know what happened to it years ago. I don't think that water transportation on its own legs, if I may be Irish enough to describe it that way, has any chance of really hurting the railroads. What it can do under subsidy with government money, and under indirect subsidy under the Dennison Act, with unlimited joint through rates, compelled on all its connecting carriers, is another matter. However, water transportation doesn't strike me as a real danger.

Don't Blame the Commission—

It Is the Carriers' Move

To sum up, the forces that are operating against the railroad are very serious. There is this loss of traffic—I don't say immediate loss of traffic—but the failure of the continually increasing volume of traffic on which we have in the past depended, and the danger of a positive loss of serious proportions in that traffic. Then we have the rate situation at very near the critical point. I don't think the rate structure can stand any further

whittling of any size without developing a serious hole in railroad revenues. We have this condition of intense rivalry and individualism on the part of carriers both in the matter of traffic and consolidation.

Whatever may be the defects in the latter, whatever may be the defects in the Interstate Commerce Commission, *it is the carrier's move now, and nobody can do for them what they are in common sense and almost in honor bound to try to do for themselves.* If they must go down, they should go down fighting, and they haven't fought this thing through yet, and it is to fight it through that I am urging. The fight must be intelligent, it must be well-organized, it must be captained, it must know what it is doing and it must be all along the line.

In the first place, I think that whatever may have been the individualistic rivalries in the past in the active good times, in a time of common emergency people are able to sink their rivalries rather better. There never has been a time when the situation was so naturally conducive to just that kind of affair. Can't it be done? It is no use to say, "We can't find a man." There must be men, there are men, there is always a man. What did the Romans do when things got out of hand? The first thing they said, "Let the consuls see to it." That was martial law. And the next thing was the dictator. It is true he was only dictator six months under the law, but they pretty soon extended that period. I don't like the word "dictator" or "czar"; I like to call it by the name of that great man of forty years ago—Albert Fink. Can't we get an Albert Fink back in the railroad industry, get behind him and help him to work out the problem?

Never mind the Commission or the law. It is a job that you yourselves can do for yourselves, without anybody's "by-your-leave or say so,"—that is the job now before you.

Great Northern Pacific Case Re-Opened

WASHINGTON, D. C.

THE Interstate Commerce Commission announced on October 17 that it had decided to re-open the Great Northern Pacific unification case for further hearing at a time and place to be hereafter set, thus yielding to the demands of eleven western state commissions and demonstrating that threatened legislation is sometimes more potent in Washington than laws that have been on the books for years. The eleven commissions had petitioned for a re-opening of the proceeding for both hearing and argument, on the ground that the public and the railway employees had not had sufficient opportunity to be heard during the year and a half the case was before the commission. The petitions as to further argument were not granted.

The roads involved, in reply to the petitions, had taken the position that such a re-opening at this time would serve no useful purpose and would be premature since the commission had withheld any order in the case pending submission by the applicants of a supplemental plan or proposal complying with the four requirements found by the commission to be necessary before it could approve the unification. The principal of these requirements was that the Great Northern and Northern Pacific give up their control of the Burlington. The commission found, in its report of February

11, that it would be in the public interest for the Great Northern Pacific to acquire control of the Great Northern, the Northern Pacific and the Spokane, Portland & Seattle and that the plan had important advantages, but the record was held open for the submission and consideration of a supplemental plan or proposal, which, while not altering the recorded application in other respects, shall give acceptable assurance and provide that:

(1) The Burlington shall be divorced from control by the northern companies within a reasonable period of time.

(2) A bona fide and feasible plan for the acquisition and operation of all the so-called short lines of railroad named in System No. 12 of the consolidation plan, except such as may be found by the commission not to be required by the present or future public convenience and necessity.

(3) A comprehensive program and statement of proposed policy in the matter of unified operation of terminals, or its equivalent.

(4) Suitable assurance that the Chicago, Milwaukee, St. Paul & Pacific, upon fair terms, may have access from Spokane to Portland and intervening points, over the lines of the Spokane, Portland & Seattle, as provided in the plan of consolidation.

The deposit committee which had been holding the stock of the Great Northern and Northern Pacific that assented to the unification plan in July offered to the holders the right to withdraw their stock with the privilege of redepositing it later and at the same time indicated that the decision as to a supplemental plan would await the possible action of Congress as to consolidation legislation at the next session. It was stated in a letter to the commission that the applicants had been giving consideration to a supplemental plan to conform to the conditions imposed and that if and when such supplemental plan was formulated and filed it was assumed the commission would hold further hearings at which all interested parties might be fully heard.

Therefore, the action of the commission in re-opening the proceeding at a time when apparently there is nothing before it to be decided came as somewhat of a surprise.

In some quarters it was taken as indicating that the commission is preparing to back down in the face of the political opposition to the unification proposal which expressed itself last spring in efforts to put through Congress a resolution introduced by Senator Couzens to suspend the power of the commission to authorize railway unification or consolidation until Congress should enact more permanent consolidation legislation.

The resolution was somewhat modified before its passage by the Senate and would be still further modified by the form in which it was reported by the House committee on interstate and foreign commerce, but the latter committee, at the demand of representatives from the northwestern states, had inserted a provision specifically suspending the power of the commission to approve and authorize any acquisition of control of the Great Northern and Northern Pacific or to enter any final order in the case.

If the commission should desire to impose additional conditions in view of the fears expressed by the railway labor organizations that the unification would tend to reduce the number of employees on the roads involved, it would have an opportunity to do so as a result of any hearings on a supplemental plan, but the suggestion has been made that the commission may have assented to a re-opening of the case at this time in an effort to remove the danger of the passage of the Couzens resolution at the coming session of Congress in a form that would tie its hands completely in dealing with the Great Northern Pacific case or might even stop all progress toward the carrying out of the general consolidation plan contemplated by the transportation act.

The fact that the Couzens resolution is still pending is credited with having already brought about an almost complete cessation of activities before the Commission looking toward railway consolidation, although other factors also have entered into the situation. The Baltimore & Ohio, Chesapeake & Ohio and Wabash, which had indicated their intention of filing new applications for authority to add to their systems in place of the applications filed last year which were withdrawn after the commission's plan was promulgated, have not yet done so and the only important applications now before the commission are those of the Southern Pacific to acquire the St. Louis Southwestern and of the Pittsburgh & West Virginia to acquire the Wheeling & Lake Erie and the Western Maryland.

There is also pending in Congress the Parker-Fess bill, which proposes some permanent modifications of the consolidation provisions of the transportation act, and the Parker bill has been reported by the House committee, but little progress toward permanent legislation is expected at the coming short session because a good deal of opposition to the whole idea of consolidation has grown up in Congress and the subject has been more or less sidetracked pending the House committee's investigation of the holding company situation.

* * * *



Section Foreman's Cottage and Twelve-Room Brick Bunkhouse at Christoval, Tex., on the New Santa Fe Line to the Rio Grande



Luxurious Passenger Equipment

THE Canadian Car & Foundry Company delivered five dining and 12 lounge cars the forepart of last summer to the Canadian National for service in its "International Limited" trains, which operate between Montreal, Que., and Chicago. It also built 12 sleeping cars for the "Confederation," operating between Toronto, Ont., and Vancouver, B. C. The new equipment for the two trains contains a number of interesting innovations in design, interior finishes and facilities. Vestibules were eliminated in the construction of the dining cars, and the extra floor space acquired has been utilized for other facilities. The sleeping cars on the "Confederation" are designed to give the passenger a choice of upper or lower berth, drawing room, single or double bedrooms. The lounge cars used on the "International Limited" have a barber shop, shower bath with facilities for exercising, radio and full-time telephone service.

Dining Cars Finished With Veneer from Ancient Walnut Tree

The interiors of the five dining cars are finished in walnut veneer from a tree which, according to available records, was green in 1264. This tree stood for nearly seven centuries near the Manor House of Cuxham, now a part of Merton College of Oxford University, England. The wood is highly figured and has a beautiful





Canadian National Passenger Cars—Left: Lounge Car—Right: Sleeping Car—Below—Dining Car



natural grain which has been skillfully matched in the panels. It has not been stained or varnished, but rubbed and polished to a smooth finish.

Mouldings have been eliminated in the interior finish as far as possible and the veneer has been so installed as to give a perfectly flat surface. The small side panels are of Ancona walnut with a border inlay of Coramandel from Madagascar for contrast. English grey hawthorn and amboyna burl are also used in the decoration of the dining cars.

The new dining cars measure 83 ft. 1 in. over the corner posts and 86 ft. 10½ in. over the buffers. The dining room has a seating capacity for 36 persons. Two-speed ceiling fans have been installed in the dining room and six motor-driven fans in the side decking take the warm air from the top of the car, allowing the cool air to enter through screened ducts at each end. This insures uninterrupted circulation of cool air in the dining room. The usual intake and exhaust ventilators are applied to the upper deck. Improvements have also been made in the ventilation of the kitchen and pantry. The windows are fitted with sliding screens and large ventilators have been applied in the roof and side decking to exhaust the heat and odors from cooking.

The heating of the cars is so designed as to give uniform temperature in either mild or cold weather. The piping is arranged in a single tier to afford the maximum inside width to the car, a feature which also allows more knee-room at the wall for persons sitting at the tables. The heating pipes are covered with a new quatre-foil design of grille which has a matt silver finish, similar to the other metal fixtures in the interior of the car.

The lighting consists of fixtures on the walls and deck lights recessed in the lower deck. Candle brackets in

clusters of three lights with flame-shaped bulbs are applied at each pier, except at the ends where two lights are used. The lower deck lights are located over each table. They are of Lalique glass which is moulded in a good design of conventionalized fruit. The steel work of the car has allowed an additional $3\frac{1}{2}$ in. in height to the windows which improves the natural lighting. The ceiling or upper deck is of steel slightly curved and widened which gives a roomy appearance to the cars. It is painted in Nile green with an egg-shell gloss finish.

As far as possible no wood was used in the construction of the kitchen and pantry. Partitions are made of steel and the lockers and plate racks are of silveroid. The increased length of the cars, due to the elimination of vestibules, provides additional space for refrigerators and lockers.

The dining-room chairs have been built substantially of walnut with rounded backs and are padded in green Scotch leather. The tables are covered with inlaid battleship linoleum which acts as a cushion for china and silverware. The buffet at the end of each car is finished in figured walnut to match the panelling. The doors in the upper portion have individual sections of plate glass set in a special design of came.

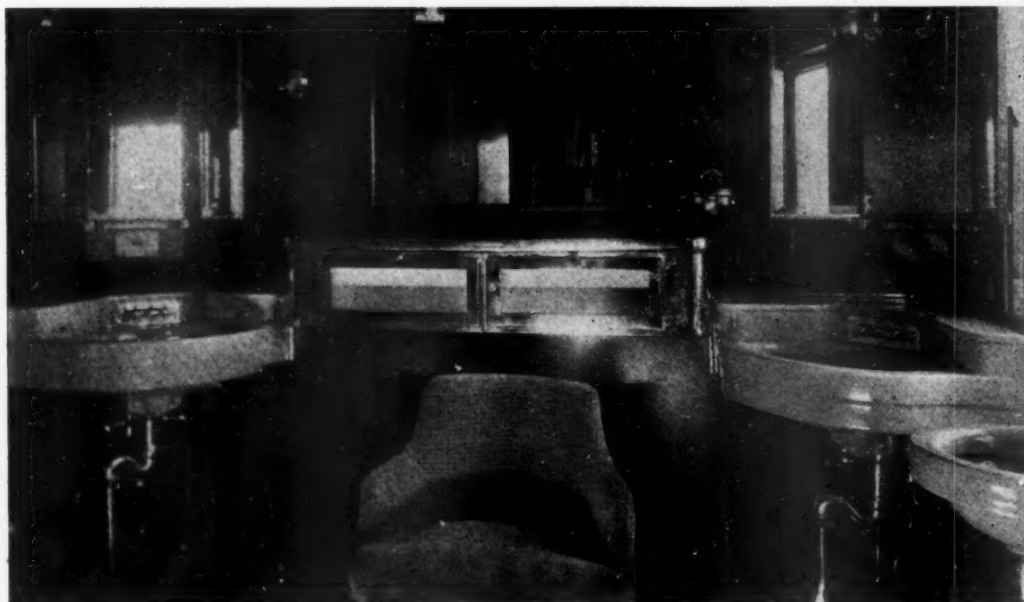
The Lounge Cars

The 12 lounge cars are 78 ft. $3\frac{1}{2}$ in. over the end sills and have a vestibule on one end and a solarium with Vita glass windows on the opposite end. The lounge compartment is finished in maple veneer and is elaborately furnished with tables, desks, and over-stuffed chairs and davenports as shown in the illustrations. The seats, chairs and davenports are covered with striped blue and grey English hair cloth of good wearing quality. The lounge cars are equipped with a soda fountain, buffet, barber shop and bathroom. The latter contains a tiled shower, exerciser and Vibratone. These facilities are much in demand, especially on transcontinental trains where passengers ride for four or five days.

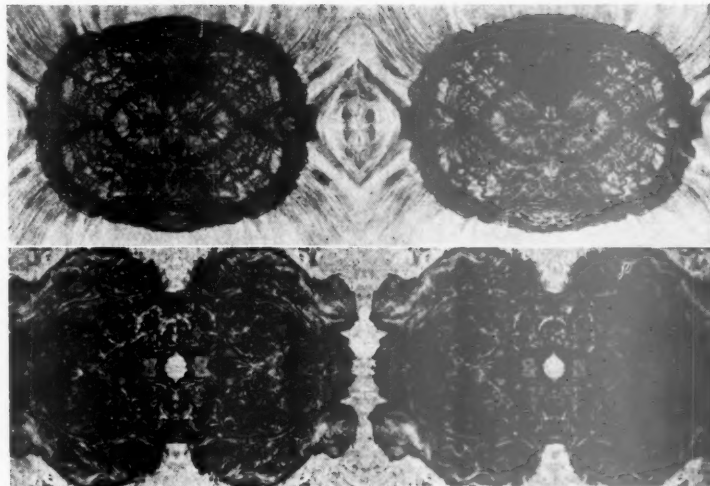
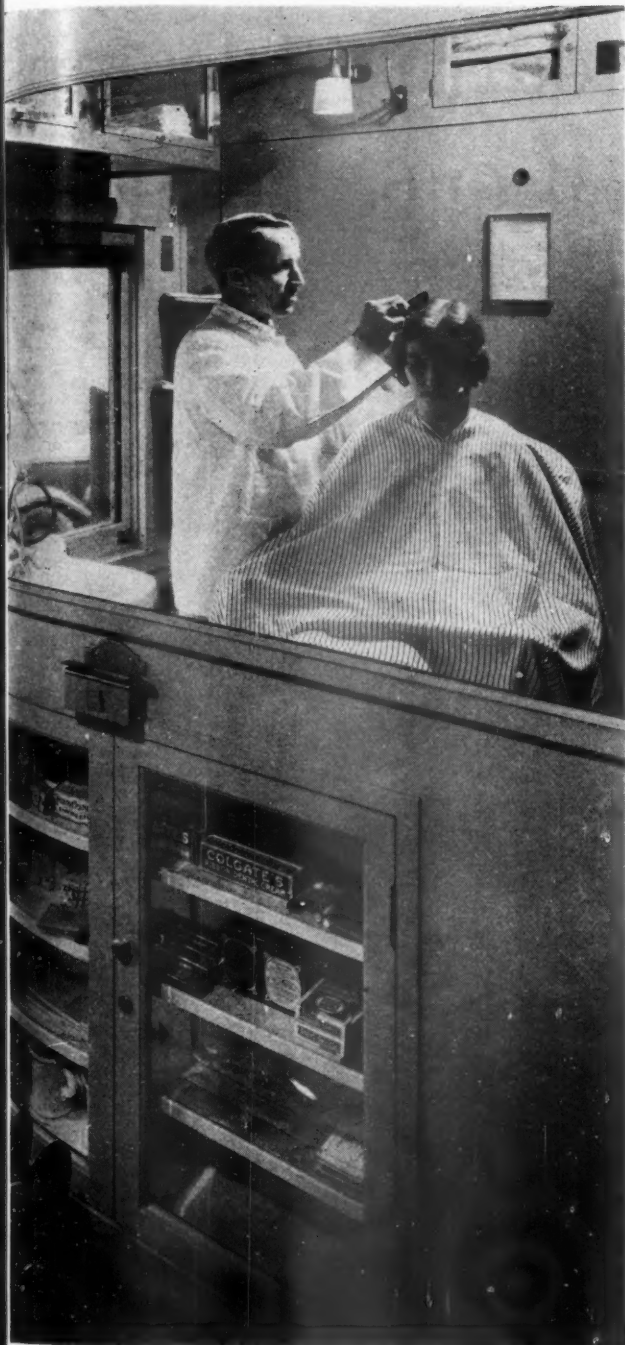
The Sleeping Cars

The sleeping cars have been designed primarily for operation on the "Confederation" and are equipped with every type of sleeping accommodation known to the traveler. Each car has six sections, one drawing room, one chambrette and three compartments. The interior finish is mahogany with an eighteenth-century dark finish. Floral designs on the transom arches, two straight lines in silvertone maple, around the edge of the berth partitions, and a shield in old blue on which a maple leaf in autumn tints has been impaled which is located on the corners of the berth fronts, feature the interior decoration of the cars. The upholstery is blue and grey friezette and the carpet is of blue and sand to harmonize with the upholstery.

Each car is equipped with intake ventilators and exhaust fans which shut off automatically when the train is traveling 25 m. p. h. A new feature in the design of these cars is found in the vestibule doors which are in two pieces so



Above: Barber Shop in the Lounge Car of the "International Limited"
—Left: Ladies' Dressing Room



Above and Below: Walnut Paneling in the Dining Room



Below: Exerciser in the Lounge Car



that the top part may be opened back in warm weather. Wash bowls and dental basins are of jade green porcelain. Each compartment and drawing room has a wardrobe for the convenient hanging of clothes. The drawing room sofas are in Chesterfield style with cushions instead of the sofa roll. The smoking rooms are finished in blue leather. The metal trimmings are of oxidized silver and the reading lights in the berths are of two-toned ivory. The sleeping cars have been named after prominent Canadian ports, such as, Port Alfred, Port Bolster, Port Hastings, etc.

The exhaust fans, lighting fixtures and generators are furnished by the Safety Car Heating & Lighting Company and the heating system by the Vapor Car Heating Co.

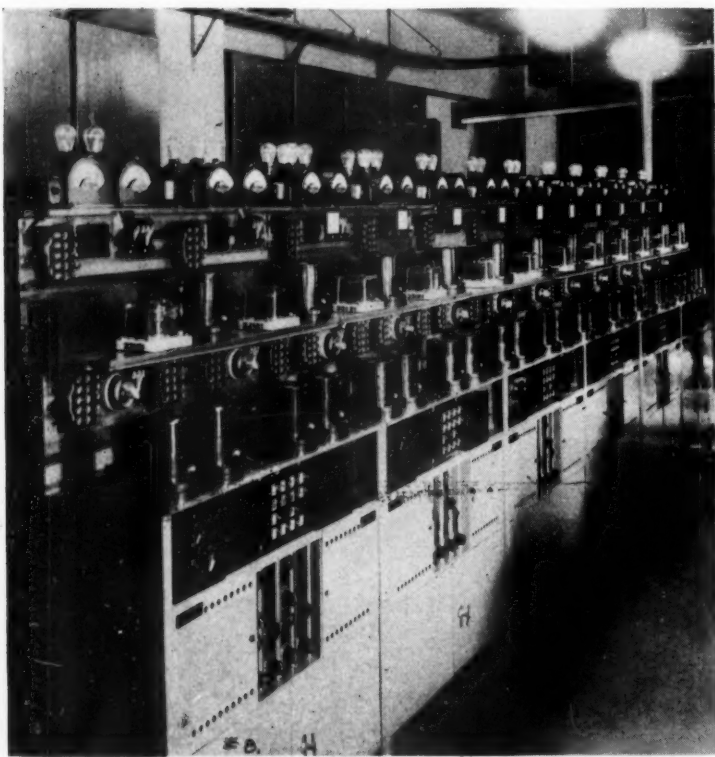
Big Four Installs Modern Telegraph and In New General Office Building at

A MODERN combined telegraph and telephone plant is one of the important features of the new general office building of the Big Four at Indianapolis, Ind. A new type 701-A automatic dial system replaces the old manual-type private-branch telephone exchange which had been in service at Indianapolis since 1912. The new telegraph equipment includes Western Union Type 2-B unit-set duplex and repeater tables, a pneumatic tube system, and other features making this plant one of the most modern in the country. In addition to this plant, a Type 711-A automatic dial telephone system has been installed at the Beech Grove shops near Indianapolis, to replace obsolete equipment.

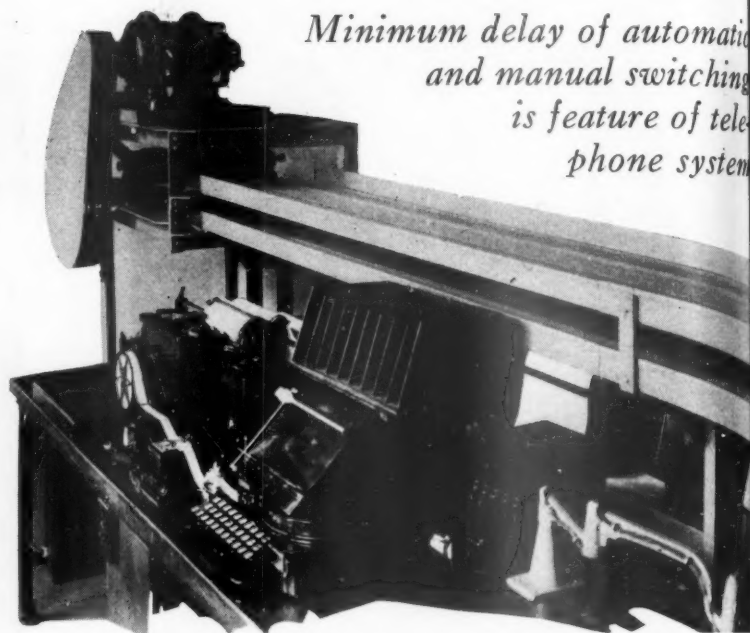
The Type 701-A telephone system in the new general office building consists of a four-position auto-manual switchboard, 13 two-way and 12 one-way outgoing central office trunks, 177 stations and 42 extensions. Nine tie trunks extend to the Type 711-A unit at Beech Grove shops, six to the auxiliary private branch exchange in the general superintendent's office on the ninth floor of the new building, and four to the city ticket office.

Telephone Switching

The operating room contains a four-position switchboard, and a chief operator's desk, the latter being equipped for all types of monitoring, and is so located as to afford adequate office supervision with the least effort. Two of the four positions of the switchboard are used for local operation, where all incoming calls



The Duplex and Repeater Tables in AB General Office



Minimum delay of automatic and manual switching is feature of telephone system

Two Positions are Equipped with Page Printers

from the public are answered, and where toll tickets are prepared on all out-bound long-distance calls, both railroad and commercial. In case a number is improperly dialed, or a discontinued number is dialed, the call is automatically intercepted and disposed of by these local operators. The remaining two positions are equipped for long-distance service, in addition to containing a multiple of the locals and the central office and tie trunks. A total of 18 long-distance and message lines terminate in these two positions, as well as an automatic gain-control cord circuit telephone repeater for each of the two positions, each having an 8-line network. The incoming and outgoing long-distance calls are handled at these two positions. The toll tickets prepared by the local operators for completion of the outgoing and incoming calls are passed to these long-distance operators, and the calls are completed directly through the multiple of the local lines appearing before the toll operators.

Mechanical Section

The mechanical section contains the 12 outgoing central office trunks, 20 line finders, 20 first selectors, 19 incoming selectors, 16 combination selectors, and 2 verification connectors. The Type 711-A dial system at Beech Grove, which is connected to the Type 701-A general exchange by 9 tie trunks, has 60 dial stations, 12 combination selector connectors and 60 line finders.

All station-to-station calls at both Indianapolis and Beech Grove are dialed directly by the Big Four employees. Calls between Indianapolis and Beech Grove are also dialed without the assistance of an operator, by first dialing a specified prefix. Incoming calls from the city are answered by the local operators, as pre-

ph and Telephone Plant ng at Indianapolis

matic
ching
f tele
system

By J. L. Niesse

Superintendent of Telegraph,
Cleveland, Cincinnati, Chicago
& St. Louis, Indianapolis, Ind.



A Message Conveyor Extends Along the Telegraph Operating Table

viously mentioned, who complete the connection, either by manually ringing the called station, if on the general exchange, or dialing the station, if a Beech Grove station is desired. All outgoing calls to the city are also automatically dialed by the various stations. On such calls from the general exchange, the prefix 9 is dialed first, followed by the city number. For such calls originating at Beech Grove shops, a second number 9 is used, the first to select a tie trunk to the general exchange, and the second to select a central office trunk.

Telegraph Equipment

The new equipment for the AB general telegraph office includes the latest-type distributing, testing, and operating equipment, and with the assistance of the new belt conveyor and pneumatic tube system, the office is enabled to handle the traffic with minimum delay. The Western Union Type 2-B unit-set duplex and repeater tables are illustrated herewith.

Entering the office are two quadded cables, one 102-pair and 110-pair, both of which terminate on protectors on the main distributing frame and from these protectors are cross-connected to new-type 40-wire terminal blocks, which economize in space over the old style 10-wire blocks. The switchboard cables are wired against the back of the board, thereby facilitating maintenance and making the terminals easily accessible.

There are 12 unit-set tables, 8 of which carry 15 terminal duplex-half repeater sets, which are the new high-speed type equipped with Wheatstone relays and can be used either as terminal duplex or as repeater devices. One table carries time-repeating equipment, consisting of eight single-line, five duplex, one spare single-line and two spare duplex sets. This time-re-

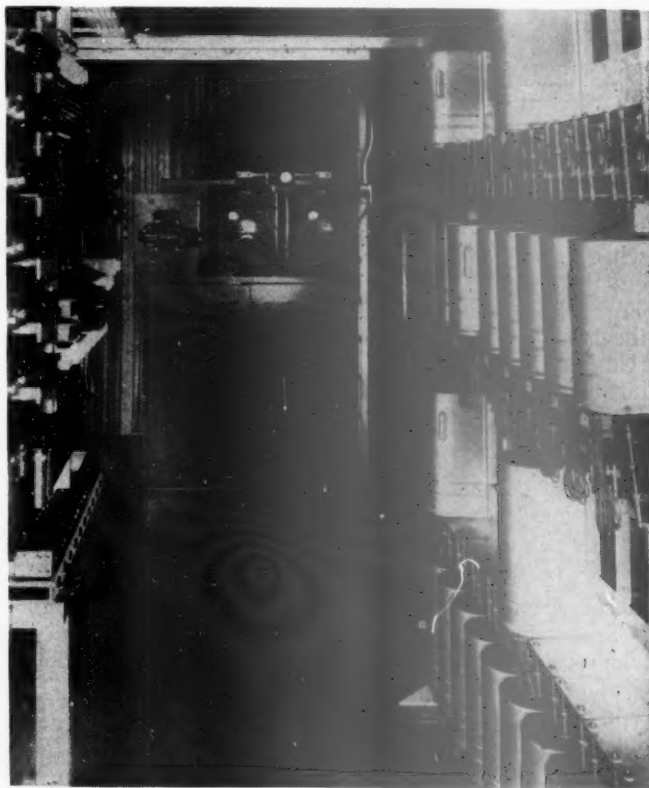
peating equipment is so arranged as to eliminate the necessity of setting up a patch for each circuit, upon which time signals are placed. The relays operate on the back contact, and are wired permanently into the various circuits, the entire group being controlled from one cord at the test board, which is connected to the master circuit when the signals are repeated. Two tables carry four half-set repeaters each, and one carries the single-line concentration equipment, which arrangement gives more satisfactory operating service than if they were placed on operating tables.

Testing Switchboard

The switchboard consists of two sections, one for telegraph and the other for telephone testing. The telegraph section contains, in addition to all terminating Morse wires, adequate battery terminals, time-signal equipment, loops, and switching equipment to repeater and operating tables. The switchboard is equipped adequately with the latest type of testing apparatus, consisting of a Wheatstone bridge, voltmeters and millammeters. Key-testing circuits instead of the old-style jack box formerly used are employed for testing purposes, and have been found to be much faster and more convenient in operation.

Belt Conveyor for Operating Tables

The Morse operating tables are double-sided and full-universal, permitting all line operation from any position. The incoming call signals register on lamps in



Automatic Telephone Equipment at Beech Grove Shop

front of the various operation positions, and can, therefore, be answered on any position, since all lines are multiplied throughout the entire table. This eliminates the switching of circuits and the movement of operators from one position to another, thereby saving both operator- and line-time. Two positions are equipped with Morkrum-Kleinschmidt page printers utilizing tape transmission, which are operated between Indianapolis and Cincinnati.

A belt conveyor, passing in front of the operators and along the top of the tables, is used to pass the received messages from the operating positions to the tube center. The belt of this conveyor travels at a speed of 150 ft. a minute, and is driven by a 220-volt, 60-cycle, 1/2-h.p. motor. At the tube center the messages are assembled in sorting boxes, from which point they are distributed to offices throughout the building. This tube center has eight inbound and eight outbound tubes. The received telegrams are assembled in the sorting boxes and are then placed in carriers and dispatched to the various offices at five-minute intervals. The telegrams arriving in the tubes are passed under an automatic electric time stamp and then placed in distribution boxes, from which they are taken by messenger to the proper telegraph, or message-telephone, position.

The tube system utilizes three-inch tubes, the carriers being moved by vacuum. Two lengths of carriers are used, a 7-in. carrier for ordinary messages, and a 10-in. carrier for correspondence and departmental interchange. These carriers have an indicating head which can be set at any desired number from 0 to 20. When the contents of the carrier are for AB office, this head is set at zero; when the carrier is destined for another office in the building, and does not require handling in AB office, the head is set at the corresponding number, and, upon arrival at the tube center, the carrier is immediately redispached in the proper tube to its destination without having been opened in AB office.

Unit Mounting System

In order to group and enclose the auxiliary equipment properly, 40 metal equipment boxes, 24 in. by 40 in. by 8 in. are mounted on metal frames along two inside walls of the office. Fourteen of these boxes contain the ringing equipment for seven train dispatching and seven message-telephone circuits. Eight boxes contain the necessary phantom and composite equipment and seven boxes are for the condenser banks, which are used in connection with selector operation on the various dispatching and message telephones. Three boxes contain telephone repeater net-works for the long distance telephone circuits. One box contains relay equipment used in connection with a local signaling arrangement and four boxes are for the terminals of the various house cables. One box contains Balkite charging equipment for all storage batteries and two boxes are for the various simplex and repeating coils. These boxes provide a highly fireproof unit-type installation, which permits the removal of any individual equipment unit without disturbing the entire group. They also protect the apparatus from dust and dirt, thereby reducing maintenance costs to a minimum.

The ceilings in both the telephone exchange and the telegraph office are covered with Acousti-Celotex, Grade "BB," 1 1/4 in. thick, put on in block form. This reduces room noise, as well as noise coming up from the street, to such an extent that the absence of confusion from such sounds is highly noticeable.

The telegraph office was installed and wired by the

Big Four forces under the general direction of J. L. Niesse, superintendent of telegraph, and T. A. Bates, telegraph and telephone supervisor. Engineering specifications were prepared by G. L. Miller, assistant engineer, and the installation was made under the immediate supervision of R. D. Merideth, chief inspector.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading seems to have passed the year's peak without having once attained the million-car mark. The nearest approach to that figure was the week ended August 30 when the total was 984,504. For the week ended October 11 it was 954,874, a decrease of 17,618 cars under that for the week before, which had shown an increase. As compared with the corresponding week of last year the decrease was 224,666 cars, and as compared with 1928 it was 235,867. Last year's peak was in the week ended September 27, when the total passed the 1,200,000-car mark, and the sharp end-of-the-year decline began in the week ended October 25. All commodity classifications and all districts showed reductions in the week ended October 11 as compared with both 1928 and 1929. Miscellaneous loading was 101,000 cars less than in either year. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading

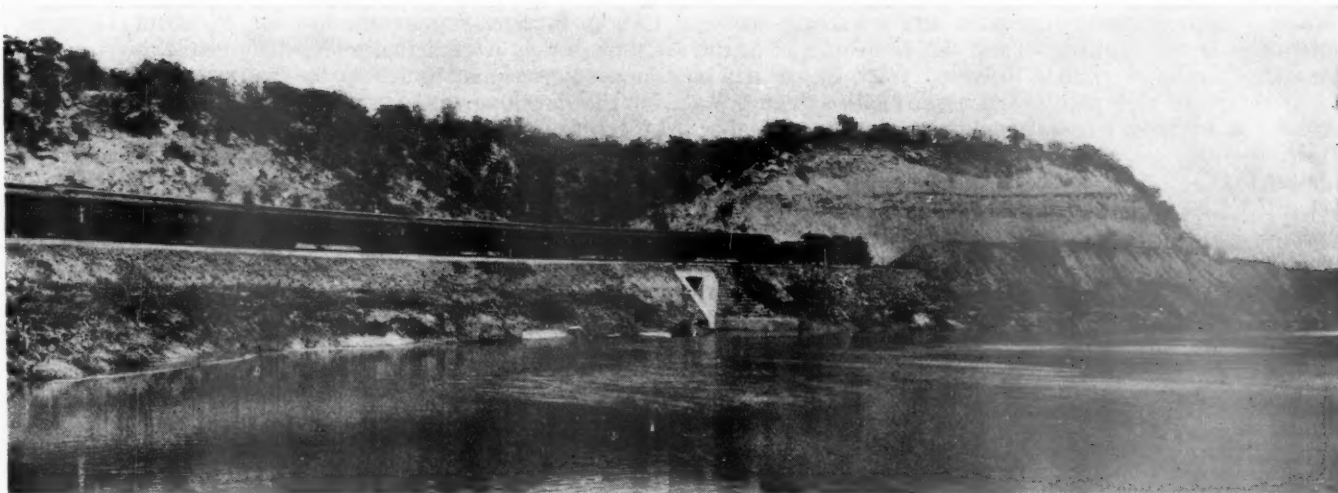
Week Ended Saturday, October 11, 1930

Districts	1930	1929	1928
Eastern	213,712	257,593	264,309
Allegheny	188,226	235,237	236,687
Poahontas	56,109	68,445	65,766
Southern	133,961	161,424	164,915
Northwestern	136,721	176,595	179,009
Central Western	152,790	182,338	183,312
Southwestern	73,355	97,908	96,743
Total Western Districts	362,866	456,841	459,064
Total All Roads	954,874	1,179,540	1,190,741
Commodities			
Grain and Grain Products	40,667	46,817	56,811
Live Stock	31,381	35,686	38,384
Coal	176,689	208,264	207,940
Coke	9,050	12,250	10,991
Forest Products	39,229	64,723	66,717
Ore	37,017	61,410	60,686
Merchandise, L.C.L.	242,695	270,878	269,892
Miscellaneous	378,146	479,512	479,320
October 11	954,874	1,179,540	1,190,741
October 4	972,492	1,179,947	1,187,032
September 27	950,381	1,203,139	1,196,965
September 20	952,512	1,167,395	1,144,131
September 13	965,713	1,153,274	1,138,060
Cumulative total, 41 weeks	37,086,014	42,279,513	40,602,535

Car Loading in Canada

Revenue car loadings at stations in Canada for the week ended October 11 totaled 71,279 cars, an increase over the previous week of 382 cars but a decrease of 6,790 cars from the same week last year.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada		
Oct. 11, 1930	71,279	33,561
Oct. 4, 1930	70,897	31,952
Sept. 27, 1930	70,797	30,942
Oct. 12, 1929	78,069	42,137
Cumulative Totals for Canada		
Oct. 11, 1930	2,518,161	1,375,100
Oct. 12, 1929	2,817,239	1,695,325
Oct. 13, 1928	2,810,336	1,610,812



The Sunshine Special Eastbound on the T. & P.

Improved Facilities Produce Savings

*Texas & Pacific's complete rehabilitation results
in operating efficiency*

Part II

GREATER attention has been given to the expedition of train movements through the installation of automatic block signaling, remote control switch machines and centralized control. The installation of automatic block signals has proceeded rapidly. After 23 miles were installed in 1926, and 131 in 1927, a record installation of 620 miles was made in 1928, and during 1929, 221 miles of signals were installed. At the close of 1929 the following trackage was operated under automatic block signals:

Gouldsboro to Alexandria	192 miles
Shreveport to Marshall	36 miles
Texarkana to El Paso	861 miles

Electrically-operated switches under the control of the operator at Sierra Blanca enable T. & P. trains to enter and leave the joint track with the Southern Pacific without stopping. A similar arrangement has been installed at Whitesboro, the junction for track used jointly with the Missouri-Kansas-Texas, and equipment of the same character has been installed at the passing track switches at Dome, Tex., Cisco, Preble and Aledo.

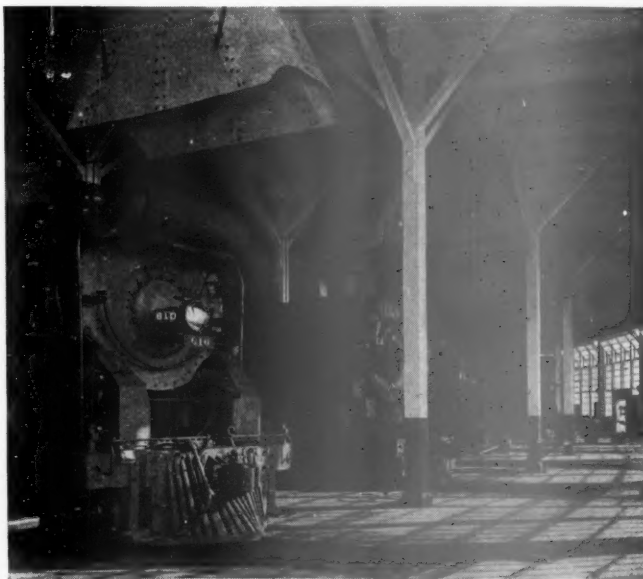
Between Hodge and Ft. Worth, over 4.5 miles of single track, trains are operated by signal indication only by means of electrically-operated switches controlled by the operator at Hodge. Between Ft. Worth and Grand Prairie, 19 miles, train movements are governed by a General Railway Signal Company's centralized control system consisting of 14 electrically-operated switches handled by the operator at Arlington under the direction of the dispatcher. This is a double-track installation with three center passing tracks. It will be extended an additional 11 miles to Dallas within the next few months, and, when completed, train movements between Ft. Worth and Dallas will be by signal indication only.

Another installation of the same kind is in service

between Edgard, La., and Addis, 55.5 miles. Passing-track leaving signals are being installed at all important passing tracks to facilitate the movement of trains in and out of sidings. These installations have produced excellent results in improved train movements and their effectiveness is being increased as rapidly as possible.

Revision of Terminals

Inadequate terminal facilities comprised probably the greatest handicap to which the operating department of the Texas & Pacific was subjected. Until the com-



Plenty of Light in the New Enginehouse at Lancaster

pletion of the various terminal improvements carried out in the last five or six years, the railway was in the possession of no terminal fitted to meet the demands imposed on it and many of these facilities were so situated as to make expansion difficult or impracticable. Furthermore, the spacing of terminals was such as to make for uneconomical road operation.

Until the recent changes and improvements were completed, the terminals on the main stem of the property, together with their spacing in miles, was as follows: Gouldsboro, 90.2 miles; Addis, 119.0 miles; Boyce, 142.0 miles; Marshall, Tex., 182.2 miles; Fort Worth, 139.9 miles; Baird, 127.6 miles; Big Spring, 152.8 miles; Toyah, 194.7 miles; El Paso. This spacing had proved reasonably satisfactory west of Fort Worth, but it was far from satisfactory east of that point. The districts were of irregular length, for example, 182.2 miles between Fort Worth and Marshall and only 90.2 miles from Addis to Gouldsboro, but the spacing of the terminals, as listed above, ignored two important centers of interchange and traffic origin, namely, Alexandria, 14.3 miles east of Boyce, and Shreveport, 41.8 miles east of Marshall, while the longest district (182.2 miles) embraced within its limits the heavy traffic center of Dallas and Longview Junction, the connection with the north end of the I.-G.N.

This situation was given extended study and while there were too many conflicting considerations to permit

freight facilities by a rail distance of about 11 miles, although they were actually less than a mile apart, which imposed a serious obstacle in the way of an effective plan for the development of modern freight station facilities in that important city.

The situation has been greatly improved, however, by the construction of a classification yard and an engine terminal at East Dallas and a subordinate set-out and pick-up yard at West Dallas, which have been made to serve as a means of concentrating the freight business into and out of Dallas. Of particular importance is the fact that the arrangement of yards makes it possible for through freight trains to pick up and set out cars at both terminals and also function as transfer trains between the two switching districts without serious loss of time.

At Fort Worth a situation of even greater complexity was presented. Here, the railroad yard and engine terminal were located almost in the center of the city with the further complication of grade crossings with important streets and other railways. It was impossible to enlarge the yard or increase the length of the tracks to accommodate full trains and switching was constantly being interrupted at the crossings. This obstacle to effective operation was overcome by the construction of an entirely new terminal, the Lancaster yard at Tremble, Tex., about three miles west of the city, together with a double-track line on a revised grade

Locomotive Comparison—T. & P.

Year Ending Dec. 31	Passenger Locomotives			Freight Locomotives			Switching Locomotives			All Locomotives		
	No. of Locomotives	Total Tractive Force	Average Tractive Force per Locomotive	No. of Locomotives	Total Tractive Force	Average Tractive Force per Locomotive	No. of Locomotives	Total Tractive Force	Average Tractive Force per Locomotive	No. of Locomotives	Total Tractive Force	Average Tractive Force per Locomotive
1921	78	2,072,921	26,576	234	8,475,250	36,219	65	1,661,300	25,558	377	12,209,471	32,386
1922	78	2,072,921	26,576	234	8,475,250	36,219	65	1,661,300	25,558	377	12,209,471	32,386
1923	75	2,249,701	29,996	223	8,284,790	37,151	60	1,731,400	28,856	358	12,265,891	34,262
1924	74	2,308,931	31,202	221	8,462,910	38,294	60	1,731,400	28,856	355	12,503,241	35,220
1925	67	2,357,431	35,096	214	9,140,870	42,712	56	1,657,000	29,590	337	13,149,301	39,018
1926	68	2,421,131	35,604	214	9,140,870	42,712	66	2,232,000	32,909	348	13,794,001	39,638
1927	63	2,319,331	36,815	219	10,363,770	47,323	69	2,499,900	36,230	351	15,183,001	43,256
1928	65	2,565,653	39,472	245	13,270,370	54,165	60	2,344,200	29,070	370	18,180,223	49,136
1929	65	2,565,653	39,472	249	13,817,070	55,490	58	2,309,600	39,820	372	18,692,323	50,248

of an ideal solution, a plan was developed which resulted in a marked improvement in the arrangement of engine districts. Addis, Boyce and Marshall were abandoned as engine terminals and in their stead terminals were established at Alexandria and Shreveport, resulting in engine districts of 193 miles and 127 miles, respectively, between Gouldsboro and Shreveport. The distance of 220 miles from Shreveport to Fort Worth was divided into two districts by establishing a relay terminal at Macks, a short distance west of Mineola, thereby providing two districts of approximately equal length. The critical feature of this plan was the length of the first district, 193 miles, but with the advantage of a flat grade, adequate passing tracks and effective signaling, it has been found possible to move trains over this long district with a minimum of overtime.

This rearrangement of terminals involved the construction of new flat switching yards at Alexandria and Shreveport, and a small yard at Macks to facilitate the inspection of trains and changing crews.

At Dallas, the Texas & Pacific occupied a strategic location through the heart of the business district. However, about 12 years ago, in compliance with a plan for the elimination of grade crossings with city streets, the railway surrendered about a mile of its main line and received in lieu thereof the right to operate around the southeastern side of the city over a belt line. This arrangement resulted not only in an increase in mileage, but also in a physical separation of local

between Fort Worth and Tremble. The development embodies a modern retarder-equipped hump classification yard as well as an engine terminal and a modern locomotive shop to supplement the repair facilities at Marshall.

Relocation of the yard at Fort Worth facilitated the handling of the interchange there, which amounts to an average of 14,000 cars per month, received from nine other roads, in addition to the large volume of business originating at and destined to Fort Worth. This yard has relieved the minor classification yards of the greater percentage of their work and is able to handle the cars much faster. A glance over the working records for several days revealed that such records as the following were made daily: 71 cars, necessitating 57 cuts, humped in 24 min., or 2.9 cars per min.; 60 cars, 28 cuts, humped in 18 min., or 3.3 cars per min.

By reason of the construction of the new Lancaster terminal, it has been possible to utilize the old terminal area in Fort Worth exclusively for local service, and to insure a full realization of the potential value of this property in its central location, the construction of a new passenger station and office building and a multiple-story freight station and warehouse, together with seven grade separations, at a total cost of \$8,000,000, is now under way.

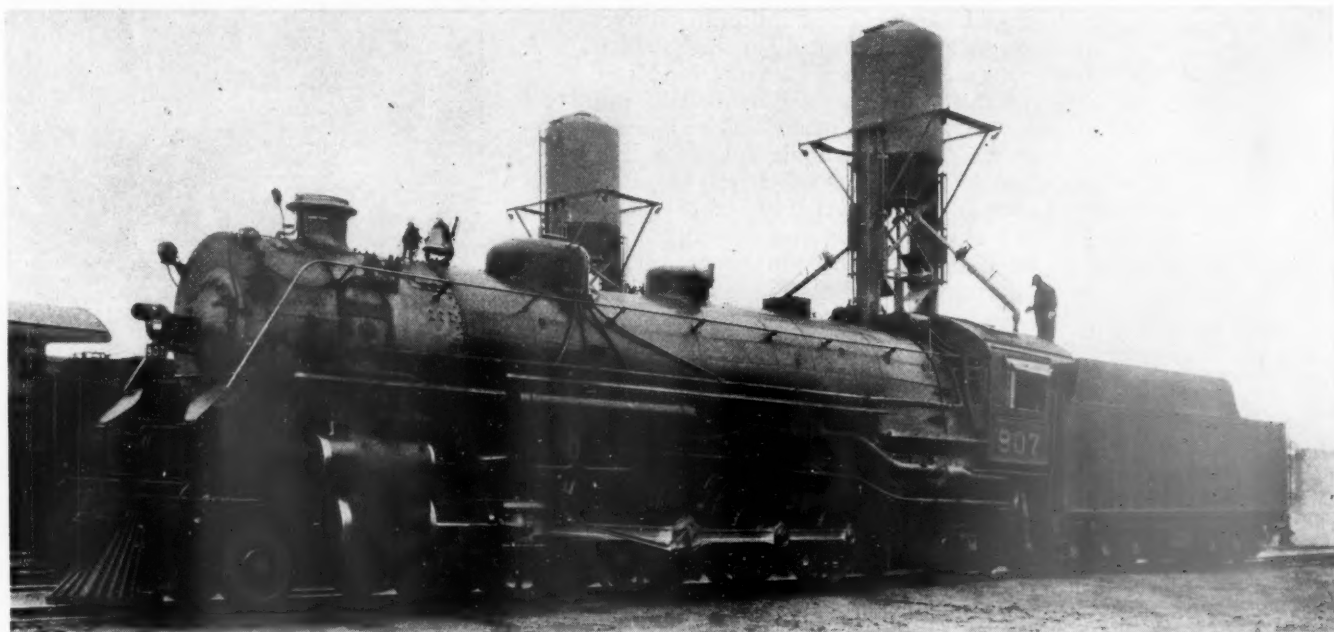
Improvement of the Texas & Pacific terminal at New Orleans dates back to 1916 when a new passenger and freight terminal were completed between Thalia and

Terpsichore streets. This improvement was brought about through lease by the Texas & Pacific of its property in the New Orleans terminal area, also its main line to Mile 9, to a terminal company owned jointly by the Texas & Pacific and the St. Louis, Iron Mountain & Southern (now a part of the Missouri Pacific). This gave both roads the advantage of freight and passenger facilities in New Orleans proper, but left much to be desired in the way of terminal facilities at Gouldsboro, the east end of the Texas & Pacific rail line on the west side of the river. The much needed improvements which were completed in 1927 at a cost of \$1,500,000, included a 16-stall enginehouse and a yard, especially designed to facilitate the ferry transfer across the river, which in-

age tractive force per locomotive was increased from 26,576 lb. to 39,472 lb., resulting in an increase in the total tractive force from 2,072,921 lb. to 2,565,653 lb.

The increased freight business required an increase in the number of freight locomotives operated from 234 in 1921 to 249 in 1929, the average tractive effort per locomotive changing from 36,219 lb. to 55,490 lb., and the total tractive effort increasing from 8,475,250 lb. to 13,817,070 lb. The number of switching locomotives was reduced from 65 to 58, while the average tractive effort was increased from 25,558 lb. to 39,820 lb., and the total tractive force from 1,661,300 lb. to 2,309,600 lb.

The total number of locomotives of all classes operated was reduced from 377 to 372, the average tractive



One Type of Power Used on the T. & P.

cludes eight classification tracks with a capacity of 25 cars each and a six-track make-up yard holding from 83 to 126 cars per track. In addition, new transfer inclines were provided on both sides of the river and the tracks in New Orleans were rearranged to provide improved facilities for interchange with the New Orleans Public Belt, the Illinois Central and the Louisville & Nashville.

While the upbuilding of the Texas & Pacific has been concentrated on intensive rather than extensive development, its line mileage has been increased by the acquisition of the several tributary properties west of Fort Worth, previously mentioned. In addition, with the exploitation of the Winkler county oil field, a line was built in 1928-1929 from Monahans, Tex., northward through Wink and Kermit to the New Mexico state line, a distance of 38 miles, and during the present year the line was extended to Lovington, N. M., a distance of 73 miles. This line has been an important source of revenue. With opening of the Van oil field in Van Zandt county, Tex., an extension of 11 miles, between Grand Saline and Van, was made to the Texas Short Line, during the early part of 1930. The Texas Short Line, extending from Alba, Tex., to Grand Saline, approximately 11 miles, was acquired by the Texas & Pacific on March 1, 1929.

The improvements and additions to the fixed properties have been accompanied by a program for modernizing power. In 1921, for example, the T. & P. operated 78 passenger locomotives, as compared with 65 in 1929. To offset this difference in numbers, however, the aver-

age tractive force per locomotive was increased from 26,576 lb. to 39,472 lb., and the total tractive force from 2,072,921 lb. to 2,565,653 lb. The detailed figures showing how this improvement has been continued from year to year are shown in the table.

It is impossible to make any direct comparison of the results of current operations with those of the period before the property had been improved. However, the excellent general operating results indicate clearly the advantages gained from this and the other improved facilities. These results, together with a survey of present operating methods, are contained in Part III of this article, which will appear in an early issue.

* * *



The Chesapeake & Ohio Now Has 72 Yard Locomotives Equipped with Pumps for Fighting Fires

Britain Celebrates Rail Centenary

Exhibition and pageant at Liverpool commemorate opening of Liverpool & Manchester

COMMEMORATING the one-hundredth anniversary of the opening, on September 15, 1830, of the Liverpool & Manchester Railway, and celebrating the achievements of 100 years of British railroading, an impressive railway pageant and exhibition, similar in many respects to the Baltimore & Ohio's "Fair of the Iron Horse" in 1927, was held at Liverpool, England, from September 13 to 20. All four of the major British railways and a number of civic organizations, notably the cities of Liverpool and Manchester, participated in planning and in handling this National Railway Week, but its direction was mainly in the hands of the London, Midland & Scottish, which now includes in its lines the original route of the Liverpool and Manchester.

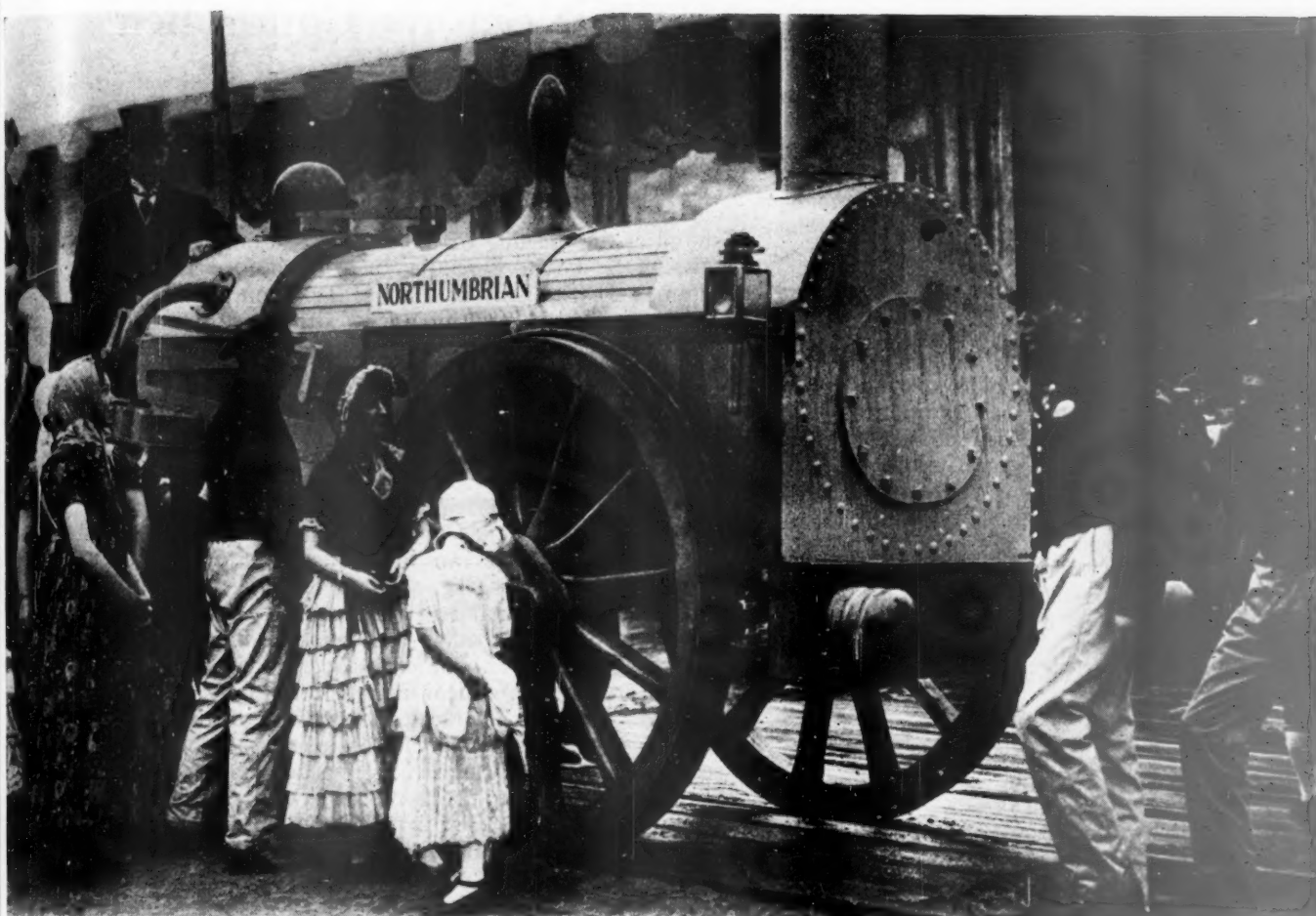
Outstanding among the many interesting features presented during the celebration, as reported in the *Railway Gazette* (London), were: (1) An exhibition on miniature railways, working models of both past and present railway equipment, and historical material relating to the evolution of transport in general and of railways in particular, all assembled in St. George's Hall; (2) a railway fair, where visitors could enjoy the unique experience of traveling on a model railway under the same conditions as experienced by the first railway passengers, riding in duplicates of the original coaches drawn by the old locomotive "Lion," reconditioned; and could then inspect, on



Above—The "Northumbrian"



Left—The Pageant of Transport, Showing a Replica of One of the Early Trains Arriving at Liverpool



One of the Liverpool & Manchester Locomotives, Reproduced for the Centennial

adjacent sidings, modern rolling stock and the newest and most powerful British locomotives; and, (3) a pageant of transport, held at Wavertree Playground, Liverpool.

The historical exhibition in St. George's Hall—assembled from the Liverpool Public Library, the L. M. S. archives and the L. N. E.'s York museum—included models and drawings of some of the original locomotives built by Stephenson, Trevithick and others, together with paintings, biographies, and other material relating to the lives and work of these and other pioneer railroad men. Exhibits relating more particularly to the Liverpool & Manchester Railway consisted of maps, engineers' reports on the proposed routes, estimates of construction costs—one of which, signed by George Stephenson and dated February 5, 1825, gave a figure of £400,000—original stock certificates, photographs of pages from the minutes of an early directors' meeting, and early tickets and timetables. A complete history of British railroading was represented in the section devoted to miniature locomotives and trains. On one of the tracks was a series of nine model locomotives—the first, a model of the "Rocket;" the last, one of the Great West-



Right—General Charles G. Dawes and the Lord Mayor of Liverpool Inspecting the "Northumbrian". After the Opening of the Pageant.

ern's present King class; the other seven arranged to show chronological progress in the development of British locomotives between the two extremes. In the same section an electrically-controlled miniature railway was in operation, with models of the Royal Scot, Flying Scotsman, Torquay Pullman and other famous British expresses of the present day.

Rolling stock on exhibition included full size copies of the "Rocket," of Trevithick's 2-2-2 type "Columbine," built in 1845, and of the Great Western's early broad-gauge locomotive "North Star." In contrast to these were representative British locomotives of the present, including a London, Midland & Scottish 2-6-0+0-6-2 Garratt freight locomotive; one of the same road's 4-6-0 Royal Scot class; a Great Western four-cylinder 4-6-0 locomotive of the King class; the Southern's "Lord Nelson," also a four-cylinder 4-6-0 express passenger locomotive; and, finally, the latest triumph of British locomotive builders, the London & North Eastern's four-cylinder, compound, high-pressure, 4-6-4 type locomotive, No. 10000. Various types of modern passenger and freight cars now used by the four British railways, and a number of Indian and African locomotives, were also open to public inspection.

The Pageant of Transport, which was presented in two parts and 24 separate episodes, on a stage approximately 300 ft. in length, required the services of some 4,000 performers. In its entirety it represented the complete evolution of transportation, from the most primitive times and methods down to the opening of the first British railway, the various episodes showing the different forms of transportation used in the various periods of the world's history. The final scene, says the *Railway Gazette*, "was finely done, the comings, going and doings of the historical characters who played such a memorable part on the occasion being watched with the closest interest, and the official opening [of the Liverpool & Manchester Railway] by the Duke of Wellington being faithfully reproduced."

As reported in the *Railway Age* of September 20, page 599, the honor of inaugurating the centennial celebration, on September 13, was given to the United States ambassador, General Charles G. Dawes. In his speech at that time he characterized the opening of the Liverpool & Manchester as a "world event *** which opened a new era for humanity," and as a matter of far more importance to the then undeveloped parts of the world—America in particular—than to Great Britain itself; and concluded with the announcement that the famous "Rocket" will make its first trip outside the British Isles when it is loaned by the British Government to the Centenary of Progress Exhibition at Chicago in 1933.

* * *



Bridge Over the South Concho River on the Recently Completed Alpine-Presidio Line of the Santa Fe in Texas

S. P. Needs the Cotton Belt

THE acquisition of the St. Louis Southwestern is essential to enable the Southern Pacific to reach important river gateways, such as St. Louis and Memphis, if the Southern Pacific is to compete with other carriers in the Southwest, Hale Holden, chairman of the executive committee of that system, stated at the opening of the Interstate Commerce Commission S. P.-St. L. S. W. hearing before Examiner Thomas F. Sullivan at Dallas, Tex., on October 20. Under persistent questioning by attorneys for various intervenors, many of whom are railroads and local community organizations favoring conditional approval by the commission of acquisition of the stock control of the Cotton Belt by the Southern Pacific, Mr. Holden declared that the Southern Pacific had no intention of changing its present traffic arrangements after the acquisition. In his testimony he pictured the results of operation of the Texas and Louisiana lines, where the Southern Pacific has an investment of \$300,000,000, as none too encouraging. Because of the competition of the Panama Canal and rate-making policies, which have affected the road's earnings, the line from the Gulf of Mexico to the Pacific Coast has not been as great a revenue producer as was originally expected, he said. He characterized the control of the Cotton Belt by the Southern Pacific as a natural and logical sequence of the existence of friendly relations for 17 years. As a result of interchange with the Southern Pacific, the Cotton Belt has been furnished with 15 per cent of its freight tonnage and 21 per cent of its gross freight revenue, he said, adding that the two systems are inherently complementary and negligibly competitive, each forming a natural outlet for the other and tending to balance the competitive systems in the Southwest. The Cotton Belt would continue operation as a separate unit, with no change in management.

Mr. Holden stated that refinancing of the Cotton Belt will be necessary within the near future, and that the Southern Pacific control will be helpful at that time. The first Cotton Belt stock was acquired in 1929, and at the present time the Southern Pacific holds 42,600 of the 171,061 shares of common stock outstanding, purchased on the open market for \$2,886,100, or an average price of \$67.75 per share, and 87,200 of the 198,936 shares of preferred stock outstanding which were purchased at \$100 per share. The total investment of the S. P. in that road is now about \$11,615,000.

The Southern Pacific proposes to buy 24,700 more shares of common stock and 59,380 more shares of preferred stock at a total cost of \$7,887,488, or an average of \$93.80 per share, which will provide it with 58 per cent of the Cotton Belt stock. All previous purchases of this stock were for cash and cash is on hand for the additional purchases, Mr. Holden said. He said that the true value of the Cotton Belt was difficult to determine, but that the price proposed was approximately the value assigned to it by the Interstate Commerce Commission. The Southern Pacific does not intend to offer to buy the minority stock.

R. V. Fletcher, general counsel of the Illinois Central, stated that that road had no objection to the withdrawal of the Cotton Belt from System No. 10 of the commission's plan for the consolidation of the railroads and its transfer to System No. 16. J. T. Saunders, vice-president in charge of freight traffic of the Southern Pacific system, reiterated Mr. Holden's statement that it was not intended to close any traffic gateways or cancel any existing routes or rates.

Boiler Tube Corrosion Halted by Hot Process Treatment

*Chicago & North Western eliminates water troubles in
large steam plant at Chicago by introducing
lime and soda ash softener*

By R. E. Coughlan

Supervisor of Water Supply, Chicago & North Western, Chicago

THE value of the hot process lime and soda ash treatment of railway water supplies has been amply proved by the favorable performance of a 25,000-gal. per hour plant which was installed in the Chicago shops power house of the Chicago & North Western in April, 1928.

Owing to the increased demand for steam at this terminal, six additional 500-hp. water-tube boilers were installed during 1926 and 1927. These supplement six 250-hp. water-tube boilers which were formerly in service and which are still being operated. These boilers furnish all steam for the operation of the generators for power, the testing of steam locomotive boilers, the operation of machinery and the heating of all buildings of the shops and offices, which normally have some 2,500 employees. Approximately 1,624,000 lb. of steam is generated daily during the summer months and 4,480,000 lb. daily during the winter months.

The new 500-hp. boilers are equipped with what is known as an economizer section in which the hot gases leaving the boiler are baffled through a series of 120



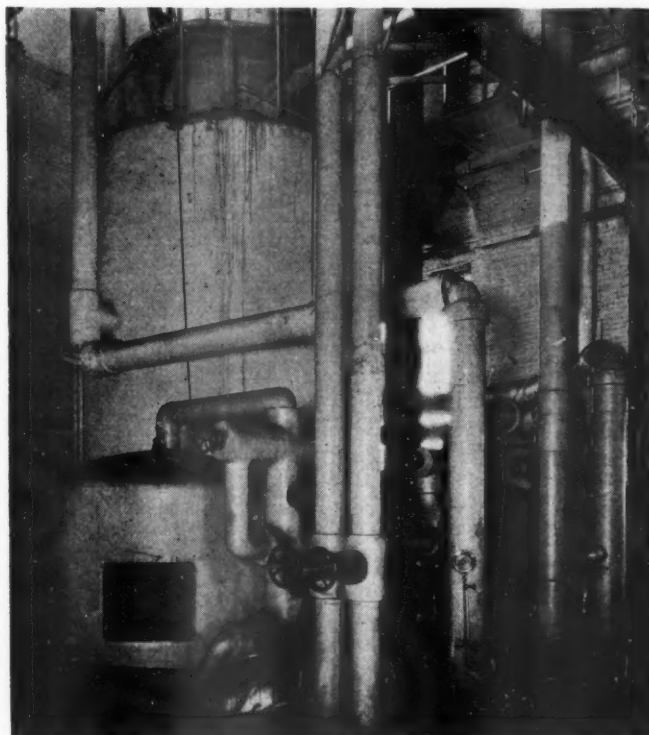
An Interior View of the Power House

three-inch tubes containing the feed water from the supply entering the boiler. This arrangement raises the temperature of the feed water to such an extent that it enters the boiler at a high temperature ready to be generated into steam.

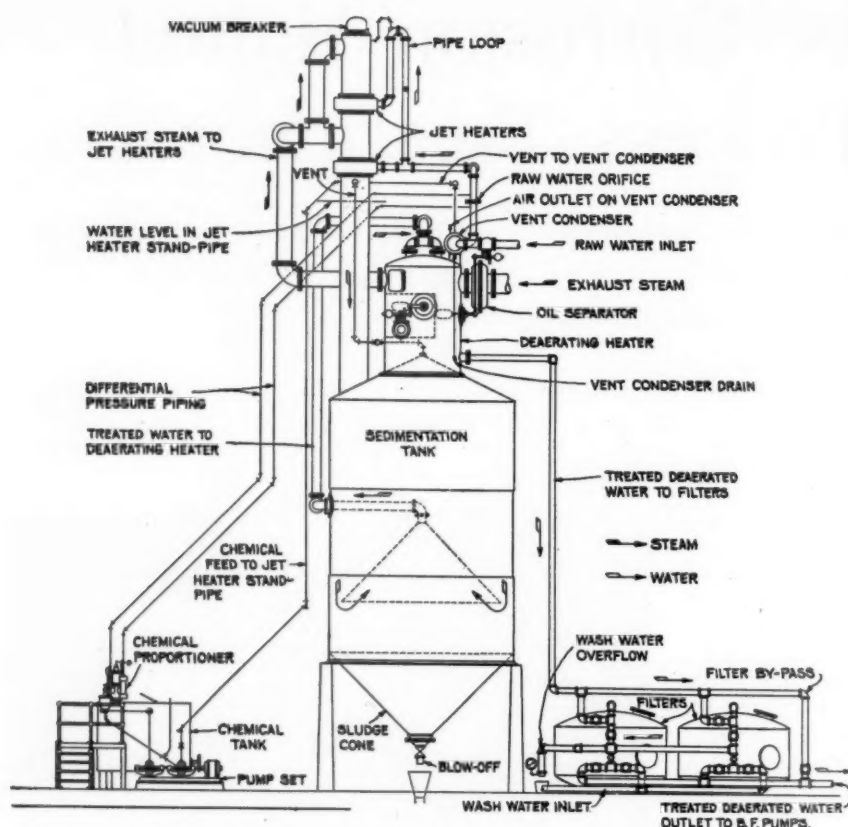
Severe Corrosion

After approximately six months' operation of these new boilers, severe corrosion developed in the tubes and upper drum of the economizer section. This corrosion was apparent in the form of pits extending through the tubes and necessitated the complete removal of all tubes so affected. Owing to the large amount of water evaporated when operating at 200 per cent of the rated capacity of the boilers, trouble was also experienced in the water boxes which extend through the firebox. These boxes became coated with calcium carbonate, the presence of which, under the high heat of the firebox, caused the boxes to crack. This was an unusual experience with Chicago water from Lake Michigan, which contains approximately eight grains per gallon of calcium carbonate.

It was the intention, when these boilers were installed, to operate them continuously for from 60 to 90 days without washout, but, owing to the operating conditions, it was necessary to take one of them off approximately every 30 days for repairs.



A View of the Softener, Showing the De-aerator at the Top and the Quartz Filters at the Lower Left



A Sketch of the Water-Softening Equipment

Internal treatment was first tried in conjunction with the circulation of 25 per cent of the boiler water back through filters which were placed on the line from the boiler section to the entrance of the economizer section. The opinion was that if sufficient alkalinity could be maintained in the water in the economizer section the corrosion would be retarded and, if this was possible, the treatment would also keep the water boxes clean, thus preventing further cracking.

The results obtained by this method were very disappointing, as it was impossible to maintain a constant alkalinity in the economizer section, while the concentration was built up in the boiler to such an extent that the combination of alkali with the suspended matter from the precipitated calcium carbonate caused the boilers to prime, and trouble was experienced in furnishing dry steam. Corrosion still continued and additional suspended matter appeared in the superheater tubes in the form of mud.

Hot Process Softener Installed

In April, 1928, a complete Cochrane hot process softener equipped with a de-aerator and a battery of quartz filters was installed. In this softener the make-up water, which is approximately 85 per cent in the summer months and 60 per cent in the winter months, is first heated to a temperature of 210 deg. F. by exhaust steam, supplemented by live steam added automatically when necessary. The lime, soda ash and sodium aluminate are then added from the proportioner of the chemical tank and this mixture of chemical and water is allowed to drop downward, depositing the sludge upon the cone bottom, whence it is discharged from the plant by means of a quick-opening valve. The softened water, after one hour's reaction time, is then conducted into the de-aerator where it is heated to a temperature of 214 deg. F. under pressure. The gases escape through the vent of the de-aerator and the hot,

softened water flows downward onto the quartz filters, whence the boiler feed water pump supplies it to the boilers. The analysis of this feed water now shows calcium carbonate 0.5 gr. per gal.; sodium carbonate 1.5 gr. per gal.; and a slight trace of oxygen. The temperature at which the boiler feed water pumps force it into the boilers is 209 to 212 deg. F. The blow-down is now done twice in 24 hrs. and the 500-hp. boilers, operating at a rate of 1,250 hp., require very little attention, being in excellent shape. These boilers now operate from 90 to 120 days between washouts and very little trouble is expected with wet steam.

The tubes which were in service in April, 1928, are still in the boiler and economizer section without any indications of corrosion. The present water boxes have also been in service the same length of time. They, too, are in excellent shape.

A return storage, or surge tank, is also on the line for the storage of all of the return from the heating system and the turbines. As this water is condensed steam or water that has already been through the softener, it is fed directly into the de-aerator and then onto the filters, together with

what water is necessary from the softener to insure ample supply. This proportioning of make up and return is all automatic so that it is not necessary for the engineer to give it much attention.

Little Attention Required

This unit has apparently solved the problem in a very satisfactory manner. The construction is such that it requires little attention on the part of the powerhouse engineer. The pressure under which the water is furnished from the city mains is such that it carries the make-up water to a height, in the softener, that gives sufficient head to force the water through the de-aerator after softening and down onto the filters by gravity alone. The boiler feed-water pumps take the water from below the filters and are amply supplied by reason of the satisfactory head of water. The filtering unit is 33 per cent oversized, so that when washing back one filter unit the remaining two can carry the load successfully without crowding.

The simplicity of construction, the accuracy of proportioning of chemicals, as well as the high temperature at which the water is supplied to the boilers and the quality of water supplied have fully justified this type of installation at this terminal.

THE KANSAS CITY TERMINAL RAILWAY COMPANY has entered into an agreement with the Metropolitan Life Insurance Company for group insurance for more than 1,700 employees, which provides \$3,000,000 life insurance in combination with \$3,000,000 accidental death and dismemberment insurance, and the payment of weekly benefits under a sick and accident policy. The life insurance ranges from \$1,000 to \$3,000, and is accompanied in each instance by an equal principal amount of accidental death and dismemberment protection. Sick and accident benefits for this group range from \$10 to \$20 a week, and will be paid when an employee is unable to work due to sickness or injury from any cause.

Power Supply, New A.C. Motors and Oil Engines for Electrified Systems

Electric traction engineers discuss new phases of electrification at A.I.E.E. meeting in Philadelphia

RAILWAY electrification and electric traction were discussed on Wednesday, October 15, in Philadelphia, at the Sixth Middle Eastern District Meeting of the American Institute of Electrical Engineers. The following papers were presented:

Power Supply Facilities for Reading Suburban Electrification, by C. L. Doub, Reading Company.

Substations of Broad Street Subway of Philadelphia, by H. M. Van Gelder, Department of City Transit.

The Internal Combustion Engine as an Adjunct to Electrification, by A. H. Candee, Westinghouse Electric & Manufacturing Company.

Utilization of Railroad Rights of Way for Electric Power Transmission and Coordination with Railroad Electrification, by W. W. Woodruff, Philadelphia Electric Company, and G. I. Wright, Reading Company.

Initiating an Electrification into Operation, by H. C. Griffith, Pennsylvania Railroad.

Modern Single-phase Motor for Railroad Electrification, by F. H. Pritchard and Felix Konn, General Electric Company.

G. I. Wright, engineer electric traction, Reading Company, was presiding officer. The following paragraphs summarize the main features of the several reports.

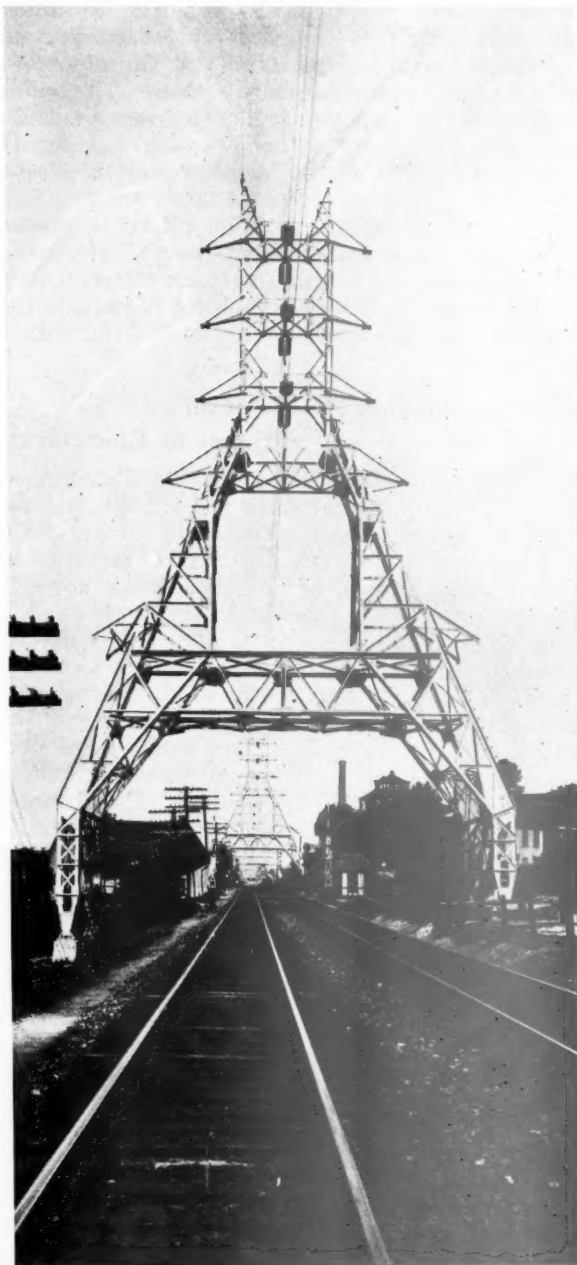
Power Supply for the Reading

The Reading Company is now electrifying its Philadelphia suburban service and the facilities are so planned that the electrification may readily be extended to include through passenger and freight service between Philadelphia and New York City, Bethlehem, Pa., and Reading, Pa. The present suburban program includes about 60 route-miles and 130 miles of track. The complete plan involves 250 route-miles and about 1,000 track-miles.

A contract has been made with the Philadelphia Electric Company for initial power requirements and provisions are made for enlarging this supply to serve the entire territory to be electrified. Calculations show that the ultimate power supply can be transmitted adequately at 66,000 volts. The trolley voltage will be 12,000 volts, and a three-wire, 25-cycle, 12,000/ 24,000/ 36,000/ three-wire distribution system will be used. Calculations show that the suburban system will have a load factor of about 30 per cent. The addition of freight and through passenger trains, many of which are run through the night, will raise the estimated load factor to about 60 per cent.

Frequency changers for converting the power supply company's 60-cycle, three-phase power to 25-cycle, single-phase, will be located at Wayne Junction, Pa. These sets will be for outdoor installations and will be the first of such installations in this country.

The physical connections between the Baltimore & Ohio, the Reading, and the Central Railroad of New Jersey make it probable that it may be desired to interconnect the electrical systems of two or more of these rail-



Type of Supporting Structure Used to Carry Electric Company Power Lines, Railroad Power Lines and Contact System Along Railroad Right-of-Way

roads at the time of through passenger electrification of the Baltimore & Ohio or the Reading, and the 66,000-volt transmission lines will permit the interchange of a suitable block of power between these systems.

Substations of the Philadelphia Subway

The Broad Street subway is the first step of a system of underground high-speed railways which is being designed and built by the City of Philadelphia. The three initial substations provide 630-volt power by means of rotary converters. The substations are located in residential districts and are so designed that the noise of the rotaries will not disturb the neighborhood. The buildings have no windows and the walls have an inside brick veneer separated from the main wall by an air space. The main entrances are constructed with two sets of double doors having an air space between.

The fourth and latest substation placed in operation this year is of radically different design. Mercury arc rectifiers are used in place of rotary converters and iron-clad, high-voltage switching equipment is employed. No special provision was necessary to protect the neighborhood from noise.

Internal Combustion Engine as an

Adjunct to Electrification

Electrification of steam railroads is usually confined to main line tracks, important yards and sidings, and major branches connecting with the electrified territory. Complete electrification is seldom justified and steam locomotives have been retained as auxiliary motor power, reducing the potential savings which may be obtained. The substitution of oil or gas-electric motor cars for operation of adjoining branch lines and of oil-electric locomotives for yards difficult to electrify offers a number of advantages. Multiple-unit Deluxe motor cars facilitate terminal operation and attract branch line traffic. Oil-electric equipment may be operated through tunnels. Switching is expedited by oil-electric locomotives. The advantages lie in elimination of smoke and dirt (thus improving property values), increased economies of operation and improved and consolidated maintenance forces.

Self-propelled cars or locomotives may be built that will operate independently or from the third rail or overhead trolley, but it is seldom necessary to add the complications involved. There is little relative difference in power cost, and for high voltage systems the capital charge resulting from the addition of a transformer, control, collector and special motors, adds a burden which can only be offset by the possibility of making slightly higher speeds when operating from the electric power supply.

Fixed charges are higher for new internal combustion engined equipment than for steam motive power. This results from interest on the higher initial cost and from the greater depreciation charge due to this higher cost. Operating savings lie in reduction of crew expense, and reduced fuel costs and repairs. Availability is high and enginehouse expenses are reduced to a minimum since hostling, wiping, fire cleaning, fueling, fire tending and smokebox inspection are practically eliminated.

Utilizing Railroad Rights-of-Way

for Power Transmission

Philadelphia has been obliged to take several steps in the matter of utilizing railroad rights-of-way for electric power transmission purposes and has probably made a further advance along these lines than any other city in this country.

The Philadelphia Electric Company was recently faced

with great difficulty in getting new power lines into the city of Philadelphia. Long, high-voltage, underground lines were avoided by making an arrangement with the Reading Railroad, whereby provision was made for carrying these lines along the railroad right-of-way. In one instance space was available outside the tracks. In this case the electric company purchased in fee simple the additional property outside of the line of proposed tracks, which it had been necessary for the railroad company to secure to allow the necessary cutting and filling for the roadbed construction. In addition, the electric company gave back to the railroad the right to cross its fee simple right-of-way wherever necessary to reach adjoining industrial developments and in return received certain rights to maintain wires overhanging the railroad right-of-way.

In another instance the power company's lines are run directly over the tracks in territory where the railroad will be electrified. Under the agreement made in this case, the railroad receives:

1—Support for its electrification, transmission and catenary circuits.

2—An annual rental charge for the occupancy of the right-of-way.

3—The alteration of all signals and telegraph facilities so that these are unaffected by the operation of the electric company's facilities and will be unaffected by the railroads' electrical operation of its trains. In this particular case the railroad's signal system was changed from direct current to alternating current and the open-wire signal and communication circuits were changed to cable and placed underground, so that the railroad would be relieved of the necessity of making these changes when it electrified.

The railroad is also relieved of the control and co-ordination of the physical and inductive conflict which might arise were the electric company's lines to be located off the right-of-way but parallel to it.

The more intensive use of rights-of-way and the successful coordination of the problems involved is a tribute to the management of the respective companies.

The recent completion and placing in service of the Pennsylvania Railroad's electrifications between Philadelphia, Pa., and Trenton, N. J., and Philadelphia and Norristown, Pa., has emphasized the importance to the railroad of the transition stage which turns a construction job into an operating job. The management, which has authorized the experiment for electrification, naturally wants the operation to start at the earliest date possible in order to obtain promptly the benefits for which the project was authorized. This necessitates the overlapping of the test period with the completion of the construction work and results in having the construction forces working on portions of the circuits and apparatus while other portions are being energized and tested.

The Pennsylvania has worked out a system for protecting construction workers and for training the special force which does the work of initiation. Those who initiate the equipment into operation receive training while doing this, which later serves to qualify them as operators.

Experience has shown that in spite of all precautions and safety features, accidents around high tension circuits will happen and every effort must be made at all times to keep those directly involved in their operation thoroughly familiar with these hazards and compel strict adherence to all safety regulations. There is no period to which this applies more strictly than to that of initiating electrical operation and closing out the final details of the construction work.

The past three years have seen a great increase of ac-

tivity in the field of alternating-current electrification of steam railroads and, consequently, much attention has been given to the design of the single-phase traction motors upon which the success of this type of electrification chiefly depends. To meet the demands on traction motors incident to announced single-phase electrification programs, considerable development work has been done. Sample motors were built and extensively tested and a sample multiple-unit car was completely equipped and put into regular passenger service.

In the design of the new motor, the greatest effort has been applied to the improvement of commutation at starting. Fortunately, this also aids commutation at speed. Other problems encountered in the design and construction of single-phase motors are similar to those met with in all other kinds of traction motors. With the material improvement obtained in commutation, the single-phase traction motor can be counted upon to give good reliable service with low maintained cost.

Discussion

The discussion was opened by Sidney Withington, electrical engineer, New York, New Haven & Hartford. Mr. Withington said that the mercury-arc rectifier complements rather than supersedes the rotary converter and the motor-generator set and suggested that a satisfactory method of rating rectifiers was needed. The importance of railroads and power companies agreeing on joint occupancy of right-of-way was, he said, also becoming of increasing importance and the future growth of railroads must be carefully considered in entering into such an agreement. He suggested that the railroads give due consideration to possible loss of business by such an agreement in which coal would, in effect, be transported by wire rather than by rail. He closed his discussion by stressing the importance of interchangeability of equipment used on electrified sections.

J. V. B. Duer, electrical engineer, Pennsylvania Railroad, said that in his opinion, W. W. Woodruff, who presented the paper on utilization of railroad rights-of-way for electric power transmission, was over-fearful of antagonism to be met with from the railroads. He also said he considered A. H. Candee, who presented the paper on internal combustion engines, optimistic about the use of oil-electric locomotives and cars in electrified territory. The greatest advantages of electrification, he said, accrue from complete electrification. Concerning depreciation of oil-electric equipment, he said that this factor would in many cases prohibit the use of this type of motive power unless the first cost was reduced. Steam locomotives, he pointed out, are always available. Mr. Duer called particular attention to the new single-phase motor and emphasized the importance of this development.

S. W. Harvey, Gibbs and Hill, consulting engineers, said that the protection of the public represented particularly by the mischievous boy is of equal importance to the protection of employees. Protecting fences at highway bridges and crossing track, he said, must be such as to make climbing and poking wires through the fences impossible. The design of such fences, he said, could be discussed with profit.

C. E. Skinner, assistant director of engineering, Westinghouse Electric & Manufacturing Company, told of what the Westinghouse Company has been doing with the same type of motor described in the paper on the single-phase motors for railroad electrification. He said that the fundamental principles of the commutating type motor are well known and outlined the factors which have affected improvement in this particular design.

J. J. Linebaugh, resident engineer, Jackson & Moreland, consulting engineers, described briefly the rectifiers and three-power locomotives used by the Lackawanna.

H. L. Andrews, engineer, railway engineering department, General Electric Company, said the work done on the single-phase motor represents a distinct advancement in what the railroads will be able to do with such motors. They will, he said, perform more work per dollar.

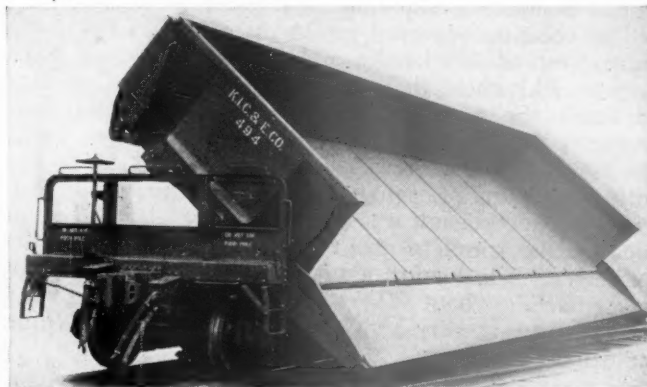
F. H. Shepard, director heavy traction, Westinghouse Electric & Manufacturing Company, endorsed Mr. Andrews' comments.

J. H. Davis, chief engineer, electric traction, Baltimore & Ohio, pointed out that no reference to inductive coordination was made in the paper by C. L. Doub on power supply facilities for the Reading electrification. He raised an inquiry as to whether studies had been made regarding the relative operating cost of straight electric and oil-electric locomotives on light traffic lines in electrified territory.

Koppel Builds 50-Yd. 70-Ton Dump Cars

IN order to meet a wider range of usefulness and to produce greater economies of operation than are possible with small capacity dump cars now in general service, the Koppel Industrial Car & Equipment Company, Koppel, Pa., a subsidiary of the Pressed Steel Car Company, has developed and placed on the market a new large-capacity, automatic air dump car, which has a level capacity of 50 cu. yd., an average heaped capacity of 65 cu. yd., and a load-carrying capacity of 70 tons.

The new car, which meets all A. R. A. and I. C. C. requirements, and is, therefore, accepted for movement in interchange service, incorporates the fundamental features of design and construction of the later types of Koppel cars of smaller capacity, elaborated upon only where necessary or advisable to meet the increased service requirements of the larger equipment. These fundamentals include the rolling trunnion principle of dumping, which, it is said, acts to give power to the dumping cylinders at the moment of starting the body from rest to the dump position; low center of gravity to insure stability of the car on the track in transit and when dumping; support for the body on the under-frame and not on the trunnions; rapid discharge of loads without excessive shock to the car or the track; doors of heavy box-girder construction, equipped with shed plates to prevent dirt from gathering and causing the doors to jam; and simple and positive door opera-



The New Car in Full Dumping Position, Showing Lowered Side Door and Shed Plates

tion, with the operating gear so arranged that the door may be stopped at any point in its movement from normal upright to full dump position without damage to the door, the gear, or the car.

Many features are claimed for the car, which, it is said, foster safety of operation and make the car suitable for work-train or revenue service. The cars may be dumped singly or in multiple, and dumping operations can be controlled from any car in the train or from the locomotive. Quick reversal of the dumping direction is provided for, and when operations are carried on from the ground, it is not necessary for the operator to go between the cars. A direction valve, located conveniently near the side of the car, indicates clearly in which direction the car will be dumped when the dumping valve handle is moved to dump position. This valve can be locked in neutral position, and when locked, guards against any possibility of accidental dumping in transit. Simple locking bars, engaging both the car body and the underframe, prevent dislocating the body on the underframe as a result of faulty manipulation of the air valves, and, at the same time, these bars, operating in conjunction with the door gear, serve as a positive lock against accidental opening of the doors. The new cars are equipped with an air storage tank of suitable capacity to make prompt dumping independent of the air capacity provided by the locomotive.

The more important dimensions, the dumping angle and the weight of the new 50-yd. car are given in the following: Height overall, 8 ft. 7 $\frac{1}{8}$ in.; width overall, 10 ft. 4 $\frac{1}{2}$ in.; length over striking plates, 46 ft.; length inside body at top, 42 ft. 2 $\frac{1}{2}$ in.; length inside body at bottom, 40 ft. 5 in.; width inside of body at top, 9 ft. 3 in.; width inside of body at bottom, 8 ft. 10 $\frac{1}{2}$ in.; depth inside body, 3 ft. 7 in.; coupler height, 2 ft. 10 $\frac{1}{2}$ in.; distance center to center of trucks, 35 ft. 9 in.; truck wheel base, 5 ft. 6 in.; dumping angle, 45 deg.; and weight, 80,300 lb.

Report on Collision Near Macksville, Indiana

W P. Borland, director of the Bureau of Safety, Interstate Commerce Commission, has issued a report on his investigation of a collision on the St. Louis division of the Pennsylvania on Thursday, August 14, in which one employee, a dining car waiter, was fatally injured and 11 employees and 18 passengers were less severely hurt. The investigation was held in conjunction with representatives of the Public Service Commission of Indiana.

The collision occurred in the state of Indiana, four miles west of Macksville and one mile east of Farrington, Ill., where the line is single track, and operated under the manual block system. Eastbound passenger train No. 26 (the Commercial express from St. Louis to New York) collided about 4:48 p. m. with westbound freight extra 6776, making a bad wreck. The collision was on a tangent and the freight had reduced speed to about 10 miles an hour, but the passenger train, having a view of only about 80 rods was traveling about 30 or 35 miles an hour, having been running at very high speed when the freight train came into view.

Dispatcher-operator Hasfurder, on duty at Farrington, had neglected to deliver a meeting order to No.

26, requiring it to stop and wait there for the freight; and also there was a misunderstanding between him and Operator Fuller, at Macksville, which led to the admission of the passenger train and the freight to the same block without assurance that the block was clear. Dispatcher Wilson is held to have contributed to the disaster by disregarding the rules in issuing the meet order in question.

Following a four-page narrative of details, the report finds that operator Hasfurder made only one copy of the order when, by rule, three should have been made; that he had no regular place to place orders waiting to be delivered and that he put this one under a corner of a pad; and that while he was outdoors and the window was open, the order disappeared, apparently having been blown away by the wind. On returning to his office, he forgot the order entirely. Hasfurder had been a dispatcher as far back as 1909 and has served as assistant trainmaster and transportation inspector.

Observing that the lessons of disasters like this have been frequently set forth by the Bureau and have been widely published, the report then goes on to catalog under seven heads the errors which were made.

1—The dispatcher issued an order to the passenger train at the meeting point when that course could have been avoided.

2—He did not include in the order the statement that the superior train was to get it at the meeting point.

3—The operator at Farrington made only one copy, assuming that the order was intended to be annulled before the train arrived and (4) he gave the x response without being instructed to do so.

5—He usually placed orders, which were ready for delivery, on his block sheet under a weight, but in this case tucked it under the pad, as stated above.

6—The two station operators did not rule the prescribed wording, according to rule 317-B, when asking for authority to move a train into a block section. Just how they erred is not clearly explained.

7—The order, sent by telephone, should have been listened to by each of three operators, when repeated by the other two, but this was not done and the report calls attention to the fact that with Form 19—which form is the only one used here—the rule requiring operators thus to listen is not mandatory.

Reviewing these seven points, and the testimony of the employees, the inspector concludes that most of the operations which related to the meeting of these two trains were carried out as a matter of common practice or habit, without close adherence to the provisions of the rules.

"No railroad officer can sit back in his chair and assume that rules are being obeyed simply because all concerned are acquainted with them;" neglect to know whether practices conform to rules is inexcusable. "Careful attention to safety first," says the report, "an idea now supposed to prevail on American railroads, would have prevented this collision which caused the death of one person and the injury of 29, and property damage of \$50,000."

Most of this division of the road is equipped with automatic block signals but the section between Macksville and Farrington, five miles, had been left with only the manual block, because the question of double tracking was not settled. The regular traffic, however, amounts to about 40 trains a day and the company, therefore, besides strictly enforcing rules, "should consider a program either of completing the double track or of putting in automatic block signals."

Reciprocity Hearings Resumed at Chicago

*Rock Island and Illinois Central added to list of roads
interrogated about purchasing practices—
President Gorman testifies*

ON Monday, October 20, after a week's recess, the Interstate Commerce Commission resumed the hearings it has been conducting in Chicago to determine the influence of traffic in railway purchasing, this time turning its attention particularly to the Chicago, Rock Island & Pacific and the Illinois Central. J. E. Gorman, president of the Rock Island, A. Mackenzie, vice-president and freight traffic manager and F. D. Reed, vice-president of purchasing, were among the witnesses interrogated on Monday, and about 200 letters taken from the files of the Rock Island were added to the commission's records which already contained more than a thousand letters pertaining to conditions on other roads. Icing contracts figured prominently in the hearings and the commission continued probing into the arrangement between the railroads and the Edward Hines Lumber Company to move 200 private cars to the coast free. The attorney for the Waugh company continued to object and to be over-ruled over the introduction of correspondence and testimony purporting to connect Armour traffic with Waugh draft gear business and was warned by the examiner that he was interrupting the examination.

More Car Evidence

The first witness on Monday was A. A. Adams, traffic manager of the Edward Hines Lumber Company, who appeared for the third time since the hearings began for questioning over the movement of the lumber company's cars. Office records covering the movement of each of the 200 cars purchased from the New York Central for shipment to Burns, Ore., showed that the Indiana Harbor Belt; the Pennsylvania; the Elgin, Joliet & Eastern; the Illinois Central; the Chicago, Rock Island & Pacific; the Chicago, Milwaukee, St. Paul & Pacific and the Chicago, Burlington & Quincy, as well as the Chicago & North Western, handled some of these cars prior to loading and that the loading points included Milwaukee, Wis.; Chattanooga, Tenn.; Gary, Ind.; Beatrice, Neb.; Middletown, Ohio; Duluth, Minn.; Massillon, Ohio; Minneapolis, Minn.; and Birmingham, Ala. Some of the cars were loaded with freight for twenty or more points in Minnesota, North Dakota, Montana, Washington, Utah and Colorado before moving to their final destination at Burns, Ore., and the routes over which the cars moved included considerable short hauling of some roads.

Mr. Adams still insisted that the cars belonged to the New York Central until the arrival at Burns, Ore., but said that the Edward Hines Lumber Company had specified the routing from Chicago and had instructed the roads not to pay per diem. He thought the lumber company had paid the switching charges, but said the intention was to file a claim on the New York Central for these charges. Correspondence obtained from the Union Pacific was introduced which purported to show ownership in the Edward Hines Lumber Company, and the superintendent of transportation of the Rock Island said he understood the cars were the property of the lumber

company. A new development in the hearing arose when a letter written by the general agent of the Rock Island to the general freight agent about a locomotive was introduced. In this letter, written on September 30, 1929, the writer said:

We have been following up the movement from the Baldwin Locomotive Works and we are now informed that this movement will be between October 1 and 15, and Mr. Hines, President of the Edw. Hines Lumber Co., has personally instructed their traffic manager to route this traffic via C. & N. W., c/o UP at Council Bluffs.

Mr. Hines gave as his reason to the traffic manager that sometime back when they purchased 200 gondola cars from the New York Central, the C. & N. W. let them store these gondolas in their yards free of charge and the C. & N. W. would draw so many of these cars every day and load them with machinery to the northwest which was a big saving to the Edward Hines people. If they had gone out empty, it would have meant in the neighborhood of \$165 per car.

Mr. Adams said the traffic of the Edward Hines Lumber Company, amounting to about 10,000 cars a year, was divided among the different roads on a percentage basis in accordance with the railway purchases, but qualified this statement, when questioned by his attorney, by saying that this policy is not inflexible but only a general policy and that transportation, service and location are important factors.

Traffic and Purchases on the Rock Island

F. D. Reed, vice-president of the Rock Island, in charge of purchases, said that copies of all purchase orders are given to the traffic department but that the purchasing department neither receives reports from the traffic department as a regular practice nor regularly confers with the traffic department, explaining that the purchasing department makes it a part of its business to know what firms are friendly to the road. He said that the friends who have the most traffic usually get the most business, but explained that it does not all go to one firm and that a large amount of purchasing is done with firms that do not have traffic to give. He did not think it would be proper to pay a higher price in order to get traffic and testified that he would not do this, adding that purchases are made at the lowest price. Most of the lumber, he said, is bought in the South directly from mills located on the line of road, while the balance is purchased on the Pacific coast, where no distinction is made between mills and wholesalers in awarding business, so long as the firms are listed as recognized bidders. Fuel oil is bought on competitive bids from firms located on the road and coal is also obtained, for the most part, either on the Rock Island lines or adjacent to them, and all the coal is obtained directly through the operating companies and not through sales agencies.

A. Mackenzie believed that the Rock Island had benefited from reciprocal buying by increasing its business with some firms and succeeding in holding business with other firms. He said he had never asked, and would not ask, the purchasing department to pay a higher price on purchases in order to get or to hold traffic. He said his department makes a practice of checking up on tonnage

received from various concerns and he believed the promises of traffic made to influence purchases were usually fulfilled.

He was then referred to a letter he received on March 15, 1929, in which his general agent said in part:

You will recall that we recently placed an order with the Union Draft Gear Co. to try and get business, but this concern have not as I can see it made good their promise.

I want you to know that I have put in considerable time going back and forth to the Grigsby-Grunow Co.; also to the Union Draft Gear Co. covering draft gears for 250 ballast cars.

He said the Union Draft Gear Company had promised freight traffic before the order for draft gear, mentioned in that letter, was placed, and explained that it would increase its business with the Rock Island. His attention was then called to a letter of October 25, in which the general agent, writing to the general freight agent, said in part:

Up to the time of writing you we have had 42 cars from the Grigsby-Grunow Co. This might seem considerable but I am not satisfied that we have been properly taken care of.

I have used up considerable time with both concerns and their representatives, and there is considerable "buck-passing" when you go to see either of them on the subject of solicitation.

The Grigsby-Grunow Co. are properly solicited and the reason that we could not get more than 42 cars is no fault of this office. The reason as I look at it is that the Union Draft Gear Co. make more promises to all the railroads than they are able to keep.

Mr. Mackenzie was also questioned about letters relating to the negotiations of Swift & Co. about draft gear of the Mechanical Manufacturing Company and particularly about a letter from R. O'Hara, stating that the gear "is being utilized on all Swift equipment" followed by a report in the same month from the mechanical engineer of the Rock Island that Swift & Co. have had only four of their cars equipped with the gear and expressing reluctance, in view of this and also the test indications, to use the gear at that time. He recalled "the unfavorable report" and, when asked why he continued to urge the purchase of these gear, he explained that he did it for "traffic reasons."

The Forsyth exhibits, opened with correspondence between President Gorman and W. N. Pelouze, a stockholder in the Forsyth Draft Gear Company, and continued with various correspondence leading up to the purchase of 10 sets of these gear for service tests on locomotives, and a subsequent letter in which the superintendent of motive power of the Rock Island, writing to the vice-president of purchases, said:

I would like to make a further test of the Forsyth gear before placing so large an order as is contemplated. Out of the ten gears which we placed on test sometime ago three failed shortly thereafter and were replaced.

A short time later, three more of these gear failed, and two months later, 300 Forsyth gear were purchased for new equipment. A few days later, the general agent of the Rock Island wrote the vice-president of traffic a letter in which he said in part:

C. U. Snyder Company (a stockholder in the Forsyth Draft Gear Company) are thoroughly familiar with our recent purchase of draft gears from the Forsyth Draft Gear Corporation, and I have explained to them that I will have to have more business from them on account of this nice order.

The file of correspondence concerning the Waugh draft gear opened with letters between Arthur Meeker, vice-president of Armour & Co., on Armour & Co.'s stationery, and President Gorman, and included a letter written on March 5, 1929, in which the general agent of the Rock Island, writing to the general freight agent, said:

Have your letter of March 4th, concerning our placing order with the Waugh Equipment Company, for draft gears to take care of 1,000 box cars which we will build.

In view of this order, Armour & Co., yesterday routed 60 carloads of underframes from Bettendorf, Iowa, to Chicago for our line.

Mr. Mackenzie was particularly questioned about a request he made on July 1, 1927, of F. D. Wickham, super-

intendent of dining and parlor cars, to purchase the company's meats from Armour & Co. and Swift & Co. instead of a middleman from whom the commissary supplies were being obtained. On July 2, Mr. Wickham, in a letter to Mr. Mackenzie, explained his reason for purchasing from the middleman, as follows:

It was through our dealings with Cudney & Co. that we were able to effect a saving of 25 to 35 per cent on our fresh meat requirements. Previous to purchasing from Cudney & Co. all of our fresh meat requirements were placed with Morris & Co., and as they had practically no competition the prices charged were entirely out of reason.

Mr. Wickham was asked if the business was transferred from Cudney & Co. to the packers and said yes and added that it has been handled that way since.

Icing Contracts

J. E. Gorman, president of the Rock Island, was interrogated particularly about icing plants on that road. Two icing plants were built, one at Kansas City and one at Silvis. The Kansas City plant was awarded to the Railway Ice Company on the basis of competitive bids, and the Silvis plant was awarded to the Continental Ice Company without competition and a 20-year contract entered into with that company for supplying ice to the road. He recalled that protests had been made by firms that desired to compete for the work, but testified that it was his thought all the while that the Continental was going to get the Silvis contract. At the outset he indicated that the preference for the Continental was a matter of his long acquaintance and high regard for certain individuals he thought were associated with the company. He stated that the men he had in mind included R. O'Hara, traffic manager of Swift & Company, and a Mr. Fay, at one time prominent in Swift & Company, and also the late Mr. Patterson, prominently identified with the icing companies. He said he considered the awarding of the contract to the Continental Company a good thing from a business standpoint, and finally explained that traffic was the consideration. It was brought out in further questioning of Mr. Reed that the Continental Ice Company was authorized to build the plant in 1927 and put the plant in operation on April 15, 1928, and that the contract was not signed until August 19, 1928. He said the work had been awarded to the Continental Ice Company because other firms were not considered thoroughly responsible and the road was also in a hurry to complete the plant in view of the impending shortage of ice.

Mr. Gorman was questioned generally about the subject of reciprocity, particularly with reference to certain letters in the exhibits. He said that he had discovered that business was done on a reciprocity basis when he was 17 years old and that he has been following the practice ever since. He said he was a traffic man and believed in buying from those who can give the road tonnage, but explained that that did not mean that the road does not or would not buy from firms not having traffic and that he did not approve of paying a premium for anything.

The examination of the Illinois Central began on Tuesday morning, October 21, with the interrogation of J. J. Bennett, purchasing agent, and the introduction of over 800 letters taken from the Illinois Central files relating to purchasing and freight traffic arrangements with over 100 different concerns, and including several records showing the comparison between purchases and traffic with these and other firms. It was brought out that the Illinois Central purchasing is done very largely on a reciprocity basis, with the price paid for coal and paint, among other commodities, fixed by the road at what is considered a "fair" price in order to facilitate the allocation of purchases in accordance with volume of traffic. The policy and practice of purchasing coal was

disclosed in the correspondence relating to this commodity. On April 8, 1929, B. J. Rowe, coal traffic manager of the Illinois Central, wrote a letter to the freight traffic manager, C. C. Cameron, in which he said in part:

We have agreed with the Peabody Coal Co. to purchase approximately 50,000 tons of coal through them during the next twelve months, the coal to come from mines on our road in Kentucky.

In consideration thereof, they agree to increase shipments via the Illinois Central from their Illinois mines by not less than 2,500 cars, approximately 125,000 tons, during the same period.

Should business conditions be such that Peabody's total shipments from Illinois are less than last year, they will undertake to give us 2,500 cars of coal that we would not have secured but for this arrangement.

I have had a somewhat similar arrangement with the Old Ben Coal Corporation for the past two years, the coal coming from the mines of the Hart Coal Corporation at Madisonville.

On January 15, 1929, Mr. Rowe wrote a letter to E. J. Hartenfeld, vice-president, Emerald Coal Mining Company, Evansville, Ind., in which he said in part:

I will say for your information that when placing our annual company coal contracts each mine is offered a contract for a percentage of our requirements in direct ratio to that particular mine's shipments.

New contracts will be placed April 1st, and your mine will be offered a contract on the same basis as other mines; based on its commercial shipments during the calendar year of 1928.

Further Illinois Central testimony will be published in a later issue.

Santa Fe and Southern Pacific Contest Train Law

HEARINGS on the Arizona train limit cases, in which the Atchison, Topeka & Santa Fe and the Southern Pacific attack the law in that state that prohibits the operation of freight trains of more than 70 cars, exclusive of the caboose, and passenger trains of more than 14 cars, opened before Joseph E. Morrison, referee in chancery, in the United States District Court at San Francisco, Cal., on October 15. The suits, filed separately by the two railroads, have been consolidated and question the legality and reasonableness of the Arizona law which provides a penalty of not less than \$100 and not more than \$1,000 for each offense.

Robert Brennan, attorney for the Coast Lines of the Santa Fe, in his opening statement before the court declared that the regulation of the permissible number of cars in a train passing through a number of states in transcontinental movement is outside the legislative field of the state of Arizona as limited by the commerce clause of the Constitution of the United States, and that the Arizona law is in conflict with the general field of federal regulation. He said that the law imposes an unreasonable and arbitrary burden upon the operation of the Santa Fe lines in Arizona and that it bears no real relation to its ostensible purpose of adding to the safety of train operation. The operation of trains to comply with the state law requires an unnecessary expenditure of more than \$600,000 annually in direct train expenses alone, Mr. Brennan said. He also stated that the Arizona statute is the only limitation fixed by law in the United States, and that the maximum is only about one-half or less of the maximum observed elsewhere throughout the United States. The adverse effect of the law prevents the Santa Fe from availing itself of the full benefit in Arizona and other states of large expenditures made recently for improvements and betterments to its property.

Donald R. Richberg, special assistant to the attorney general of Arizona, appeared for K. Berry Peterson, attorney general of that state and the defendant in the cases, and in his opening statement contended that if the regulations of the Arizona law are designed to protect persons and property which would be otherwise endangered, then the cost of the protection, within reason, is not a material matter on which to determine the validity of the law. He thought it a proper action of Arizona to exercise its police power to preserve the public safety, pointing out that the railroads, which are not natural highways, "project their moving masses across the states and necessarily introduce grave elements of danger by virtue of the operation to those who live and work in the state."

Charles T. Ripley, chief mechanical engineer of the Santa Fe, in his testimony as a witness before the court, introduced a statement concerning break-in-twos on the Santa Fe, which was in part as follows:

Year	Number of B-i-t*	Train Miles per B-i-t*	Car Miles per B-i-t*
1912	6,604	3,684	107,972
1922	4,437	5,254	211,450
1923	4,108	6,317	259,933
1924	3,340	7,272	326,887
1925	2,795	8,598	409,848
1926	3,230	8,169	397,630
1927	3,353	8,028	399,148
1928	2,499	9,772	497,127
1929	2,317	11,347	579,483

* B-i-t—Break-in-twos.

Mr. Ripley called attention to the fact that number of break-in-twos has decreased from 6,604 in 1912 to 2,317 in 1929 in spite of the fact that in the same 17-year period the car miles practically doubled, while the train miles increased 10 per cent. He showed that a reduction of nearly 70 per cent has taken place in the number of break-in-twos while the length of trains is about twice as great. Mr. Ripley said that it would be perfectly feasible to operate trains of 4,000 tons, having more than 70 cars, through Arizona.

As an example of train operation on the Santa Fe, Homer R. Lake, superintendent of transportation of that system, introduced a statement showing the number and length of through freight trains operated on October 1, 1929, between Belen, N. M., and Chicago, which was as follows:

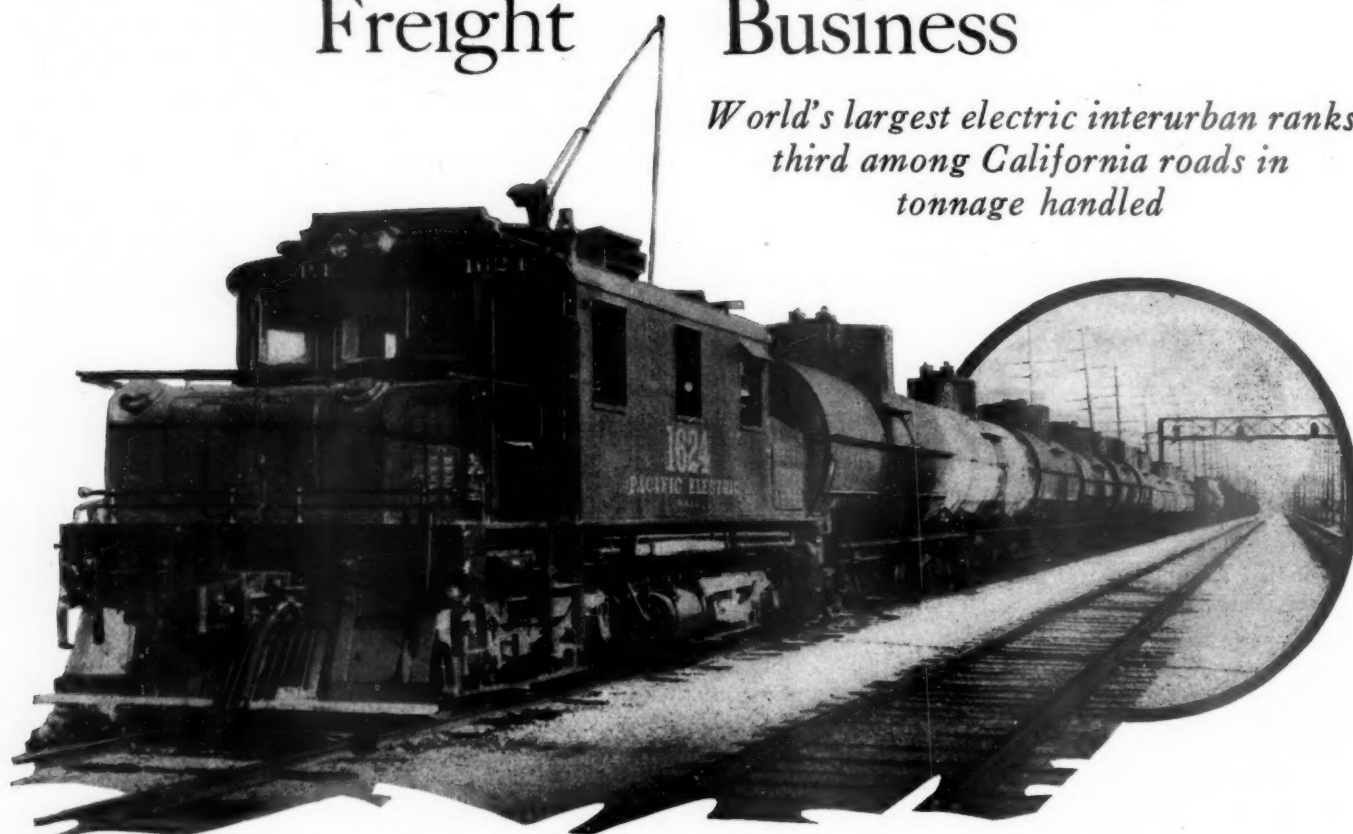
Districts	Number of trains handling							
	Under 71 cars		71 to 90 cars		Over 90 cars		Total	
	East	West	East	West	East	West	East	West
Belen-Vaughn .....	..	..	6	2	2	3	8	5
Vaughn-Clovis .....	..	..	5	3	3	2	9	5
Clovis-Amarillo	4	2	6	4	..	3	10	9
Amarillo-Canadian	1	2	1	2	7	6	9	10
Canadian-Wynoka .....	..	2	1	..	7	5	8	7
Wynoka-Wellington .....	..	2	7	..	3	4	10	6
Wellington-Emporia	1	2	6	2	4	3	11	7
Emporia-Argentine .....	..	1	10	6	6	7	16	14
Argentine-Marceline	8	9	7	5	..	..	15	14
Marceline-Ft. Madison	9	7	6	4	..	..	15	11
Ft. Madison-Chillicothe	1	6	11	1	1	3	13	10
Chillicothe-Chicago .....	..	4	11	1	2	2	13	9
Total	25	37	77	32	35	38	137	107

Mr. Lake also presented a statement showing the average tonnage and the average number of cars in the trains of over 70 cars in length on the same date, which was as follows:

Districts	Number of trains		Average no. cars per train		Average tonnage per train	
	East	West	East	West	East	West
Belen-Vaughn	8	5	87	103	4,214	3,109
Vaughn-Clovis	8	5	89	90	4,357	2,826
Clovis-Amarillo	6	7	88	89	4,202	2,610
Amarillo-Canadian	8	8	97	101	4,520	3,008
Canadian-Wynoka	8	5	97	99	4,480	3,038
Wynoka-Wellington	10	4	91	105	4,267	3,245
Wellington-Emporia	10	5	90	98	4,131	2,884
Emporia-Argentine	16	13	101	98	4,027	2,821
Argentine-Marceline	7	5	77	84	3,721	2,633
Marceline-Ft. Madison	6	4	76	81	3,578	2,508
Ft. Madison-Chillicothe	12	4	83	90	3,785	2,845
Chillicothe-Chicago	13	15	86	88	4,086	2,939
Total	112	70	88	99	4,109	2,866

Pacific Electric Increases Its Freight Business

World's largest electric interurban ranks third among California roads in tonnage handled



The Handling of Oil Provides Much Revenue

THE policy of the Pacific Electric Railway Company of engaging in all forms of transportation has resulted in the development of the largest electric suburban passenger railroad in the world, a system which ranks third in California in the amount of freight handled, and extensive local car and motor coach operations. The company was incorporated in California in September, 1911, to unify the operation of the several electric systems controlled by the Southern Pacific. During 1912 the company purchased the right of way and equipment of the Pacific Electric Land Company and took over the property of the Ontario & San Antonio Heights Railroad Company, which still retains its corporate existence.

The Pacific Electric operates a transportation system whose lines radiate from Los Angeles into the counties of Los Angeles, San Bernardino, Riverside and Orange. The total track mileage of the system is 1,161 of which 608 miles are main track. There are 285 miles of line with one main track, 276 with two main tracks, 0.64 miles with three main tracks and 12 miles with four main tracks. Sidings, spurs and other tracks total 329 miles. The gage is standard.

Most of the right of way is at ground level although some portions are elevated and one portion passes through a subway in Los Angeles. Power is purchased from the Southern California Edison Company and is delivered at specified points and transmitted to the various substations, of which there are 44. These substations are spaced from 6 to 12 miles apart on busy lines and from 10 to 12 miles apart on those of lighter traffic. To handle peak loads and to provide for emer-

gencies four portable substations and three power plants are held in reserve. Each of the portable substations is equipped with a transformer and a 600 kw. motor generator set and is of special value when a substation is shut down for repairs or when exceedingly heavy traffic places an overload on a portion of the circuit.

The capital stock authorized amounts to \$100,000,000 while the replacement value of the property is given as \$110,000,000. The outstanding stock totals \$34,000,000 and is all owned by the Southern Pacific, except the directors' qualifying shares. The gross earnings in 1929 amounted to \$18,417,335. The company employs 6,500 persons, who are paid \$11,000,000 annually.

Freight Revenues One-Third of Total

Although most generally thought of as an interurban passenger system, the extent and volume of the freight handled by the Pacific Electric is by no means small, the number of carloads handled annually approximating 200,000 and the revenue aggregating one-third of the total received from all traffic. The Southern Pacific and the Atchison, Topeka & Santa Fe are the only roads whose freight traffic in California exceeds that of the Pacific Electric. This freight service, which includes a general interchange with all railroads at Los Angeles and at numerous other more direct junction points, has been developed extensively since 1912 to afford additional revenue for the Pacific Electric and to serve as an outlet for steam railroads. Large investments have been made to care for its steadily increasing freight business and since 1912, \$19,500,000 has been invested or appropriated for freight and pas-

senger facilities, of which amount \$6,000,000 has been for freight service exclusively. The rapid development of freight traffic is further emphasized by the volume of traffic handled, the total for 1929 being 200,000 carloads as compared with less than 1,000 carloads in 1914.

Of the 608 miles of main line operated, 488 miles are used in freight service. There are 65 freight agencies on the system, while 600 employees are engaged in freight service besides those whose duties are jointly passenger and freight. The road serves 1,100 industries, of which 52 are citrus packing houses. The freight equipment consists of 2,794 freight cars, 54 electric locomotives, six steam locomotives and two combination gas-electric locomotives. Of the cars, 1,148 are open top, 846 are box, 19 are tank and 10 are stock. Each day a total of 163 freight trains is operated over the system, of which 142 are operated out of Los Angeles. The freight train mileage totaled 8,387,721 in 1929.

The carload business consists principally of petroleum and petroleum products, rock and gravel, citrus fruits, lumber, cement, grain and vegetables. The largest individual source of traffic is oil which goes from the fields to Los Angeles for distribution. Several solid oil trains are operated daily, the total shipments of petroleum and products in 1929 amounting to 35,987 cars. The next largest source of traffic is rock and gravel, the total shipments for 1929 being 21,155 cars. The shipment of citrus fruit in that year amounted to 11,548 cars, lumber, 10,304 cars and cement 9,447 cars.

In addition to the carload business much l.c.l. business is handled, the total for 1929 being 50,000 cars, of which 60 cars are loaded daily at the Los Angeles station alone. To facilitate the movement of the l.c.l. business, special trains are operated over the system daily. All such freight received at Los Angeles during the forenoon is delivered to the various stations on the system during the afternoon, while that received later is moved during the night. The tonnage turned over to connecting lines at Los Angeles has increased from 10,000 tons a month in 1914 to 50,000 at the present time.

Over 100 Million Passengers Handled

To provide passenger service, the Pacific Electric operates interurban cars and trains and motor coaches to and from 45 incorporated cities as far as 77 mi. from Los Angeles. In addition it operates electric cars and motor coaches in Los Angeles. The interurban passenger revenue in 1929 totaled \$5,000,000, the local or street car passenger revenue \$4,000,000 and the motor coach revenue \$1,000,000. In 1929 over 100,000,000 passengers were handled. The equipment used included 830 passenger cars. The interurban train movements scheduled daily amounted to 2,450 and the local or street car 4,000.

At Los Angeles, the Pacific Electric has two large passenger terminals, one at Sixth and Main streets and the other at Fourth and Hill streets. From the former some trains leave on the street level and others on an elevated structure. Those which leave the latter terminal use the streets or a subway which passes under a portion of the city to Hollywood boulevard where the trains use the streets.

The Pacific Electric, like other railroads, has felt the effect of automobile competition and has adopted several innovations and practices to hold its traffic or to counteract the loss of revenue. To speed up and provide a more comfortable service, \$17,250,000 was expended during the past 10 years. Among some of the

outstanding improvements were the subway and station on Hill street, improved types of cars, grade separations, heavier rails, provisions for the faster acceleration of cars, improved seats and additional block systems.

Another means of regaining passenger traffic is out-skirt parking areas. The company, realizing the difficulty and annoyance confronting the motorist who drives his car into the congested area of Los Angeles, is providing free parking space at several of its outlying stations, believing that the person accommodated will use the company's service in exchange for the courtesy. The success of this practice is indicated by the performance at the Sierra Vista station, the junction of the Pasadena, Gendora and Alhambra-San Gabriel lines. An average of about 60 cars are parked here each day, their owners boarding trains and completing the journey into Los Angeles by rail. While most of these people board a local car and pay a 10-cent fare, about one third use interurban service and pay 15 cents.

Since the trend of the times and demand of the public is for faster and more comfortable transportation service, the Pacific Electric has possibly gone further than any other of our major electric properties in rendering these two essentials. Increased speed has been brought about by intensive supervision; limited trains are being operated in constantly increasing numbers; additional power substations have been added; roadbeds are heavily rock-ballasted, and 112-lb. rail installations on heavily traveled lines have and are replacing the former lighter rails; faster acceleration equipment has been placed on many of its cars; constant effort has been made to combat unreasonable speed restrictions, and scientific braking designed to decelerate more quickly has been developed.

To contribute to the comfort of travelers, all of the recent and future purchases of electric cars and motor coaches are and will embody the latest developments of the industry. About 200 units of the Pacific Electric's older equipment have been made much more comfortable through the installation of heavily upholstered automobile cushioned type seats, and many cars have had the open section closed in. The extent to which the management has pledged to render an improved service is indicated by the recent purchase of ball-bearing cars. Incidentally the local cars of the Pacific Electric are of all-steel design, seat 65 passengers, have door control which eliminates the possibility of step accidents and cost approximately \$22,000 each.

Motor Coach Operations

The loss of passenger traffic because of motor coach competition caused the Pacific Electric to engage in this form of transportation. Motor coach lines have been established to replace rail lines and thereby attain more economical operation or reduced capitalization, to serve as feeders to rail lines or to guard against outside motor coach competition. The Pacific Electric now operates 29 motor coach lines which utilize 132 coach units. Of these, 46 coaches are operated on 11 interurban routes whose mileage aggregates 123.25 and 86 motor coaches are operated over 18 city routes whose mileage is 73.37.

In addition, the Pacific Electric and the Los Angeles Railway are joint owners and operators of the Los Angeles Motor Coach Company which serves the Hollywood district of Los Angeles, renders a cross-town service in the western section of the city between the territory served by the Los Angeles Railway and the Pacific Electric, and operates two through lines from the center of the city through the territory served by both railways. Six separate lines, totaling 50.75 mi.,

are being operated by this agency. It uses 146 motor coaches, 84 of which are double-decked. Each of the two railways owns half of the equipment and shares equally in operating expenses and revenue. During 1929 the Los Angeles Motor Coach Company carried 17,093,329 revenue passengers and operated motor coaches 4,260,498 mi.

The Pacific Electric's experience thus far is proving that it is possible to develop a considerable volume of business and revenue through the chartering of motor coaches for special party movements. The bulk of this business is the handling of athletic organizations from schools and colleges, lodges, civic organizations and industrial groups. Much of it is handled during off peak hours and all of it with spare or emergency equipment, which makes the business fairly remunerative.

Besides these forms of service, the Pacific Electric provides store-door delivery of freight through a subsidiary which was incorporated on March 11, 1928, and which is operated as a separate unit. The company, formerly the Pacific Electric Transport Company, but now the Pacific Motor Transport Company, originally served southern California, but its operations have recently been extended into Southern Pacific territory, principally the San Francisco Bay district, the southern coast and central California. It now serves 47 stations on the Southern Pacific and is proving successful in regaining I.C.I. business. The Pacific Motor Transport Company is a common carrier express company which performs a complete service from door to door. It issues bills of lading and publishes rates to cover the entire service. It calls for freight, carries it to the railroad, which transports it to another town, and delivers the merchandise from the station to the consignee. The railroad gets its compensation under a private contract with the transport company.

* * *



Three of the 42 Three-power Electric Locomotives for the New York Central's West Side Electrification in New York City Ready to Leave the Erie, Pa., Works of the General Electric Company

Looking Backward

Fifty Years Ago

The reckless war of passenger rates which raged for over a week between the Wabash, St. Louis & Pacific [now the Wabash], the Chicago & Alton, the Chicago, Rock Island & Pacific, the Chicago, Burlington & Quincy and the Illinois Central, was brought to an end by agreement of the presidents of the roads at a conference in New York on October 22 for the immediate restoration of rates. Agreements were effected for a division of traffic between the roads in the Middle West.—*Railway Age*, October 28, 1880.

It is but a few years since 20,000 lb. was considered the maximum load for a freight car, but the figures of the western weighing association show a remarkable increase in this respect. During six weeks nearly 50,000 cars were weighed, and while the average of the different classes of freight ran from 23,750 lb., for machinery, to 29,925 lb., for ore, the maximum in nearly all cases exceeded 30,000, and for some classes of freight reached, respectively, as high as 39,600, and even, in the case of ore, to the enormous weight of 48,500 lb.—*Railway Age*, October 28, 1880.

A snow blockade in the middle of October is something heretofore unheard of in this country, but it occurred, commencing on the 15th of the month, upon numerous railways in the West and also in parts of the East. Portions of the Chicago, Milwaukee & St. Paul; the St. Paul, Minneapolis & Manitoba [now the Great Northern]; the Northern Pacific and other roads in Minnesota and Iowa, and the New York Central, among others in the East, were completely blocked by snow for from a few hours to two or three days. Drifts as deep as 15 ft. were encountered.—*Railway Age*, October 28, 1880.

Twenty-Five Years Ago

The Indiana Harbor [now the Indiana Harbor Belt], which is under construction to Indiana Harbor, Ind., in the Chicago district, has been reorganized and taken into the New York Central system. The jurisdiction of the executive officers of the latter has been extended to include the Indiana Harbor.—*Railway Age*, October 27, 1905.

President Roosevelt, in a speech made on his southern trip, has reiterated his "unalterable determination" to regulate railroad rates, but with equal vigor he has modified his previous propositions in a direction which shows a possibility of his soon being at one with the railroads and the consumers, and at odds with the organizations of shipping corporations in Cincinnati, Chicago and St. Louis, which assume to represent a public demand. Instead of giving his countenance to the crude Esch-Townsend proposition to have rates fixed absolutely, by the Interstate Commerce Commission, he recommends the prescribing of maximum rates; and by an "administrative body."—*Railroad Gazette*, October 27, 1905.

Ten Years Ago

L. C. Gilman, president of the Spokane, Portland & Seattle at Portland, has been elected vice-president of the Great Northern at Seattle. U. K. Hall, general storekeeper of the Union Pacific, has been appointed supervisor of stores of the Union Pacific System.—*Railway Age*, October 22, 1920.

The United States Railroad Labor Board began hearings on October 18 at Chicago to determine what wages should be paid employees of the various short line railroads. Bird M. Robinson, president of the American Short Line Railroad Association, enlivened the hearing by opposing the granting of any further wage increases to short line employees, and by charging that no real controversy now exists between the short lines and their employees.—*Railway Age*, October 22, 1920.

New Books

Annual Proceedings of Purchases & Stores Division of the American Railway Association for 1930. Four-hundred pages, 6 in. by 9 in., bound in cloth, published by the association, 30 Vesey street, New York.

The volume contains all the reports, papers and addresses presented at the annual meeting held by the association in Atlantic City, N. J., June 18 to 21, inclusive. Included in the reports is a revised list of the articles that are reclaimed from scrap by the railroads, with instructions on the method of doing the work. An appendix affords statistical summaries of the railway purchases for the year 1929 as they have been compiled by the Bureau of Railway Economics.

The Condensed Chemical Dictionary, Francis M. Turner, editor. 551 pages, 6 in. by 9 in. Bound in cloth. Published by the Chemical Book Catalogue Company, 419 Fourth avenue, New York. Price \$10.

This is the second edition of a book that was placed on the market in 1919 as a ready reference for persons not educated along chemical lines. While the preface for the present edition points to revisions that increase its usefulness for the practicing chemist, the book is still intended primarily for the purchasing agent and user of chemicals whose knowledge of chemistry is limited. On the whole, the treatment is that of a dictionary, but certain items have been expanded to a semi-encyclopedic form. The information given for the great bulk of the products includes the chemical formula, color, properties, melting or boiling temperature, solubility, derivation, grades, commercial containers, fire hazard and I. C. C. shipping designation. An introduction gives an abstract of the I. C. C. regulations for the Transportation of Explosives and Dangerous Articles and an appendix contains many valuable tables.

American Railway Association, Signal Section; Proceedings, Volume XXVII, 1929: R. H. C. Balliet, Secretary. Cloth, 1017 pages, 6 in. x 9 1/4 in. American Railway Association, 30 Vesey Street, New York City. Price \$8. (To members of the Signal Section \$4.)

This volume contains the reports presented at the meetings held at Atlanta, Ga., in September, 1929, and at Chicago, in March, 1930, together with minutes of the discussions at those meetings. Included in this matter are the discussion on track shunting by rail motor cars and the material prepared by Committee V on electro-pneumatic interlocking, which will be chapter XVIII of the standard work "Principles and Practices" which is being issued serially by the signal section. The secretary reports on the results of letter ballots on propositions approved at the annual meeting last March. These include instructions for maintaining and testing motor semaphore signals; for maintaining and testing light signals, and for maintaining and operating rectifiers. These letter-ballot votes also included decisions to take out from the manual the chapters on instructions for maintenance of gravity cells; on examination papers; on rules governing signal foremen, and on rules governing signal supervisors. The resolution providing a guide for allocating train control expenditures was approved.

Books and Articles of Special Interest to Railroaders

(Compiled by Elisabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

Disaster Relief by Railroads—1906-1930—A List of References. Books and articles describing the work done by railroads from the San Francisco fire and Salton Sink overflow to the present drought relief. 30 p. Issued by Library, Bureau of Railway Economics, Washington, D. C. Apply.

Federal and State Tax Systems 1930, prepared under the direction of the New York State Tax Commission. Tables showing legal citations, title of tax, basis of tax, measure of

tax, rate of tax, administration, etc. 46 tables. Limited edition. Distributed by New York State Tax Commission, Albany, N. Y. Apply.

*Interstate Commerce Acts Annotated. Compilation of Federal Laws Relating to the Regulation of Carriers * * **, prepared by and under the direction of Clyde B. Aitchison, Commissioner, for the Interstate Commerce Commission. 70th Cong., 1st Session, Senate Document No. 166. 5 volumes. Pub. by U. S. Govt. Print Off., Washington, D. C., \$8.75.

Report of the Results of Rack Tests of Power Brakes and Power Brake Appliances Conducted by the American Railway Association. Text, tabulations, and charts. 7 volumes. Pub. by Mechanical Division, American Railway Association, Chicago. \$250.

Statistics of Railways of Class I—United States (1920-1929). Tables showing investment and income account, fixed charges and dividends, employees and their compensation, traffic averages, equipment in service, locomotive-miles and train-miles, car-miles, distribution of railway operating revenue, taxes by States, fuel consumed by locomotives; rails and ties laid, and freight and passenger operating statistics. 12 sheets. Pub. by Bureau of Railway Economics, Washington, D. C., Apply.

Distinctive American Trains—Their Names—Their Territories—Their Dates, compiled by Herbert C. Barker. This book supplies in concise form the names of distinctive passenger trains of America, telling what territories they serve, and giving the dates upon which they were actually put into service. 15 p. Pub. by Herbert C. Barker, Lawrence, Kan. 25 cents.

Periodical Articles

Electrical Section Annual Meeting—Reports to be Presented October 29 and 30. Include reports on power supply, protection of oil sidings from danger due to stray currents; specifications for track- and third-rail bonds; floodlighting of railroad yards; application of corrosion-resisting materials. Bulletin of the American Railway Engineering Association No. 328, August, 1930, p. 1-68.

Financing Railroad Pension Plans. Summary of recent periodical articles. Monthly Labor Review, October, 1930, p. 101-104.

Pennsylvania's Newest Depot. Editorial comment: "... When Broad Street Station in Philadelphia was first occupied as a passenger terminal and headquarters for all of the railroad's executives thirty-six years ago, George B. Roberts, then president, and the Pennsylvania directors believed they had met the carrier's requirements for a great many years, but it was not long before the building was more than doubled in size ... Last week the Pennsylvania opened a new Broad Street Station and office building north of the old Broad Street Station ... within two and one-half years ... the old central station at Broad Street and its unsightly elevated approaches will have been demolished." Commercial & Financial Chronicle, October 11, 1930, p. 2281-2282.

Transportation, by Major Mott Sawyer. "Transportation, and particularly rail transportation, has been a larger factor in the development of the United States of America than in that of any other nation." Paper presented to World Engineering Congress, Tokyo, by Superintendent, Chicago, Milwaukee, St. Paul & Pacific. Bulletin of the American Railway Engineering Association No. 328, August, 1930, p. 69-84.

Unemployment Insurance in Foreign Countries. "An article describing very briefly the unemployment insurance systems in foreign countries was printed in the December, 1928, issue of the Labor Review. In view of the many requests made ... for information on this subject, the article referred to has been brought up to date as fully as could be done with the information available..." Monthly Labor Review, October, 1929, p. 82-100.

War Planning and Industrial Mobilization, by A. B. Quinton, Jr. "Rail transportation and power," p. 15-16. Harvard Business Review, October, 1930, p. 8-17.

Odds and Ends of Railroading

Champion Speller

Charles Eastwood, messenger for the Norfolk & Western at Roanoke, Va., holds the spelling championship for that section. During an eight-months' course at night school, he spelled 3,872 words, every one of them correctly.

Devotion to Duty

Caleb Gibbard, towerman for the Michigan Central at Hammond, Ind., died the other night, and of him it might be said, as of a soldier, "died while performing his duty." His is a busy crossing to watch, and his last act when he realized the approach of death was to lower the gates of his crossing.

Big He-Man from the West

Clyde Vickery, engineman for the Southern Pacific at Oakland, Cal., also is amateur light-heavyweight wrestling champion of the state. He is swimming and wrestling coach for the Oakland Y. M. C. A., and holds several records for bending iron bars around his neck, and tearing packs of cards in two. He claims to be the strongest engineman in the country.

Famous Railroaders

Colonel "Eddie" Rickenbacher, American ace during the World War, and now prominent in commercial aviation, was once a railroader. Beginning in 1906, he worked for a year as a car builder's helper in the Pennsylvania shops at his home town, Columbus, Ohio. Later he became a professional automobile racer, then chauffeur to General Pershing, and then an aviator.

The Most Bridges

The end of our hunt for railways with numerous bridges seems to be at hand. It is hardly likely that any other line can equal the Rapid City, Black Hills & Western. In its 34 miles between Rapid City, S. D., and Mystic, this line not only makes an ascent of 1,790 ft., but also crosses Rapid Creek 105 times. It is principally a lumber road, although one passenger train is operated in each direction daily.

Railway Sons

Among the railway sons who get into the headlines is Forrest Priest, national interscholastic javeline thrower of the United States, who is the son of Engineman John Priest of Tyrone, Pa. Then there are William Zeiders and Keith Miller, sons of a Pennsylvania fireman and a machinist, respectively of Enola, Pa. William and Keith are the proud co-holders of a tree-sitting championship, as the result of spending an even 600 hours in the branches without descending.

Flying Feet

Stella Walsh, clerk for the New York Central at Cleveland, Ohio, still continues to show her heels to all competitors, meanwhile breaking world's records. At the national championship track meet for women at Dallas, Texas, she won three individual championships, by running the 100-yd. race in 11.1 sec., the 220-yd. in 25.4 sec., and by leaping 18 ft. 9¾ in. All this was done in the face of strong competition, such as Betty Robinson, Olympic dash champion.

Going 'Round in Circles

Born and "brought up" in Elmira, N. Y., drove locomotives 1,152,000 miles—upwards of 46 times around the world—in 40 years, all within the city limits, retired, living in the same city and proposing to spend the balance of his days there enjoying the companionship of his family and his home, is the unique

record of Daniel O'Brien, engineman on the Delaware, Lackawanna & Western, whose name has just been entered on the honor roll of the company. Entering the service as an engine wiper, his work was done so well that he promptly acquired the nickname of "Shiner" and then set out to make a record which lived up to the name. Graduating to be engineman, his entire service of 40 years was confined to the Elmira yard, which accounts for the peculiar fact that he traveled so much in so small a radius.

A Quart of What?

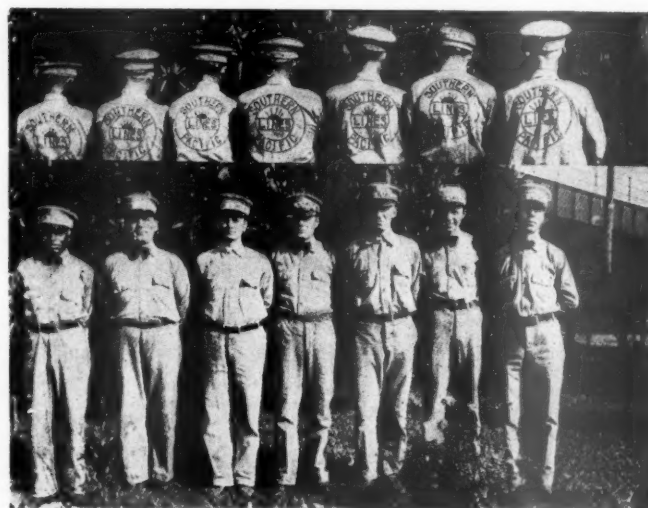
Jess Minnick and George Gippert, employees of the Frisco reclamation plant at Springfield, Mo., are ready to receive all prizes and trophies awarded for champion fishermen. They returned from a fishing trip on the Gasconade river with a 43 lb. catfish, and both contend that it was caught on a rod and reel. The head was mounted and placed on exhibition at the shop. It was examined and found that the mouth of the fish was large enough to pass a quart can through it without touching.

Coach Windows

Who controls the window in a railway carriage? The right to insist on its being opened or closed is still the cause of many a heated debate among travelers. In Germany, this burning question has apparently been settled. According to state railway regulations, the window must be opened if even one passenger demands it. Recently, complaint was lodged against a guard who had insisted on closing a window because one man of a carriage load had asked for it. So the state railway authorities got together and considered the matter. It has been decided to set aside certain compartments, which are to be labelled to the effect that the window can only be opened with the unanimous consent of all in that carriage. By the time all have agreed, the atmosphere will doubtless be close enough to make an open window a blessing.—*The Morning Post*, London.

Car Men Adopt Uniforms

The car inspectors and car oilers employed on the Houston division of the Southern Pacific at San Antonio have adopted



The Uniformed Car Men of the S. P.

and purchased uniforms and now wear them both for the purpose of indicating their occupation and advertising the company. We show here the inspector and oiler crew and their new garb.

NEWS

B. & O. Files Tariff for Its Motor Transfer

*Covers train-connection motor
coach services at New York
and Newark, N. J.*

At the request of the Interstate Commerce Commission following repeated protests by the Pennsylvania, the Baltimore & Ohio has filed with the commission, effective on October 21, a tariff covering the routes and other arrangements for its motor coach transfer of passengers between its rail terminals at Jersey City and Elizabeth, N. J., and established motor coach stations in New York, N. Y., and Newark, N. J. Under a sixth section application the commission allowed the tariff to be made effective on three days' notice.

The Pennsylvania has long objected to some of the practices of the B. & O. in connection with the motor coach service, stating that coaches departed from regular routes and the service was in various ways in violation of the law; and recently, after the commission had rejected a tariff filed by the Pennsylvania proposing to establish some sort of motor transfer service to any point in New York City, it filed a petition asking an immediate investigation of the B. & O. practices, making a particular point of the fact that the B. & O. was furnishing its motor coach service without having filed a tariff.

The tariff, after defining the territorial limitations within which the coach service is to be operated, says that "within the foregoing territorial zones the regularly scheduled motor coaches operate via such established routes as street traffic regulations permit, and passengers are discharged or picked up at intermediate points as desired, en route. For the accommodation of group travel numbering 12 or more, extra coach will be operated between rail terminal at Jersey City and any point within the territorial zones herein outlined in Manhattan or Brooklyn, or between rail terminal at Elizabeth and any point within the Newark zone herein outlined."

The B. & O. has heretofore taken the position that the terminal service was covered by its regular passenger tariffs quoting rates to and from New York, which formerly covered a ferry transfer to Manhattan Island and for a time included the Pennsylvania terminal at New York.

B. & O. Car Building Plans Provide Employment

The board of directors of the Baltimore & Ohio at a recent meeting, authorized a car building program in anticipation of future requirements and with the desire to provide employment for men whose service would not otherwise be required during the fall and winter. The program calls for construction of 1,000 steel box cars and 1,000 heavy service gondola cars at a total cost estimated at \$4,000,000.

It is understood that the work will be carried out in the Baltimore & Ohio shops or by manufacturers who will engage Baltimore & Ohio employees. One half of the work will be done at Baltimore and the other half at shops along the line of railroad.

It is estimated that in the erection shops alone this work will give some 60,000 or 70,000 man-days employment. This will not only provide work for Baltimore & Ohio employees, but a large amount of steel and other material used in the construction of these 2,000 cars will contribute to employment in other industries, the announcement says.

S. P. & S. Inaugurates New Store-Door Service

*Co-ordinating rail - highway
freight operations begun
through subsidiary*

The Spokane, Portland & Seattle, through the formation of the Northwest Freight Transport Company at Portland, Ore., has inaugurated store-door pick-up and delivery service for freight moving between Portland and Salem, Albany, Corvallis and Eugene and all other points on its lines. The store-door service will be maintained by the Transport Company under contract with transfer concerns in each city while intercity transportation will be handled by rail with rates for the entire service comparable with those now in effect by truck haul. Frank R. Forbes, general agent for the S. P. & S. at Spokane, Wash., has been appointed manager of the new transport company.

Six Hour Day Campaign Set in Motion by Labor

*Meeting November 12 to con-
sider unemployment and
shortened day*

A campaign for a six hour day among train service employees on railroads in the United States and Canada was set in motion at Cleveland, Ohio, on October 21, when a call was issued for representatives of seven railroad brotherhoods to meet at Chicago on November 12 to consider unemployment relief and the establishment of a shortened working day. About 700 representatives of the Brotherhood of Railroad Trainmen, The Brotherhood of Locomotive Firemen and Enginemen, The Brotherhood of Locomotive Engineers, The Order of Railway Conductors, The Switchmen's Union of North America, The American Train Dispatchers Union, and the Order of Railroad Telegraphers, are expected to attend.

In connection with announcement of the meeting, A. F. Whitney, president of the trainmen, stated that while the six-hour day has been under consideration for some time no definite program for its accomplishment will be undertaken until after the conference at Chicago.

Northern Lines Ask Reconsidera- tion of Grain Order

The Chicago, Milwaukee, St. Paul & Pacific, the Great Northern, the Northern Pacific, the Spokane, Portland & Seattle, and the Oregon-Washington have filed with the Interstate Commerce Commission a petition asking it to vacate its order in the western grain rate case in so far as it prescribes reduced rates on grain and grain products between points in Washington, Oregon and Idaho; requires the cancellation of existing charges for transit service on those lines, and prescribes reduced rates from Montana to California, Arizona and New Mexico. The commission also is asked to grant a further hearing or to reconsider and modify its report.

This petition is supplemental to the general petition filed on behalf of the western roads on September 6 and sets forth particularly the effect of the order on the revenues of the northern lines. A careful estimate discloses, it says, that compliance with the commission's order will result in loss of revenue to the Northern Pacific of over \$800,000 a year, to the Milwaukee of \$900,000 a year, to

the Oregon-Washington of \$750,000 a year and to the S. P. & S. of \$108,000 a year, while it is estimated that the Great Northern will not be materially affected. The petition points out that the revenues of these roads have been far below the 5¼ per cent return contemplated by the law and that the Great Northern, Northern Pacific, Oregon-Washington and S. P. & S. will not benefit by the upward revision of western trunk line class rates, which the commission prescribed in an order issued on the same day as the order in the grain case.

M. & St. L. Safety Record

The Minneapolis & St. Louis, on October 1, completed 27 months without an employee fatality, the total exposure being 24,560,000 man-hours.

Hearings in N. J. on D. L. & W. Fare Increase Proposal

The New Jersey State Board of Utility Commissioners has suspended, until February 1, the tariff of increased intrastate suburban passenger fares recently announced by the Delaware, Lackawanna & Western. The commissioners propose to hold a public hearing on November 17.

Drought Relief in Saskatchewan

The Saskatchewan (Canada) government will pay one-half the freight on all coal shipped to the drought-affected areas of the province for which requests are made by the rural communities involved, as an aid to the farmers who have suffered as a result of the drought.

Pennsylvania Acquires Land Near Toledo

The Pennsylvania has purchased a tract of 1,800 acres of land on Maumee bay, near Toledo, Ohio, and in the vicinity of the Presque Isle development of the Chesapeake & Ohio, for future use for terminal purposes. The purchase price of the land was \$276,000.

St. Louis Shippers' Plan to Oppose New Class Rates

The St. Louis Shippers' Conference is planning to appeal to the Interstate Commerce Commission for a reversal of class freight rates ordered into effect by the Interstate Commerce Commission on March 1, 1931, contending that the new rates discriminate against St. Louis in favor of Chicago and Kansas City.

George P. Schumacker Appointed to Moffat Tunnel Commission

George P. Schumacker, formerly a member of the Denver (Colo.) Board of Water Commissioners, and Herbert Fairall, a former treasurer of the state of Colorado, have been appointed members of the Moffat Tunnel Commission, to fill the vacancies caused by the death of William P. Robinson and the resignation of Charles M. Wilcox.

Opening of Suisun Bay Bridge

The new bridge of the Southern Pacific over Suisun Bay between Benicia, Cal., and Port Costa, 30 miles northeast

of San Francisco, recently completed at a cost of \$12,000,000, was opened for service on October 15. The bridge will be formally dedicated on November 1. It takes the place of the most noted car ferry in the country, the service of which was begun a half century ago by the well-known steamer "Solano."

Illinois Central Group Insurance

The Illinois Central has entered into an agreement with the Sun Life Assurance Company of Canada in co-operation with the Zurich Company for group insurance to cover approximately 100,000 employees for approximately \$225,000,000. The group life insurance ranges from \$1,000 to \$10,000 and the monthly indemnity under health and accident insurance is from \$30 to \$100 a month. The full amount of the policy will be payable upon death, and on total permanent disability, the insurance company will pay the amount of insurance and, in addition, benefits will be received under the accident and health coverage. No medical examination is required.

Railway Club Meetings

The Car Foreman's Association of Chicago will hold its next annual meeting at Great Northern Hotel, Chicago, on Monday evening, November 10. There will be a paper on steam heating of long passenger trains, by W. G. McClellan, New York Central.

The Cleveland Railway Club will hold its next meeting on Monday evening, November 3, at Hotel Hollenden, Cleveland. This is the annual meeting at which officers will be elected.

Investigation of Intrastate Fertilizer Rates

The Interstate Commerce Commission has ordered an investigation to determine

whether fertilizer rates ordered by the Mississippi Railroad Commission and the Louisiana Public Service Commission for intrastate application are discriminatory against interstate commerce. The railroads operating in the two states aver that the state commissions have required them to establish for intrastate freight service rates less than those established for interstate application.

Supreme Court Considers Private Car Suit

The Supreme Court of the United States on October 20 announced that it had found probable jurisdiction over the appeal of the Louisville & Nashville and other railroads from the decision of the district court for the western district of Kentucky which had sustained the validity of the order of the Interstate Commerce Commission prohibiting the free transportation by one carrier of the private or business car of another.

Passenger Association Discusses Coach, Tourist, Excursion Rates

Coach rates, summer tourist rates and excursion rates were the principal subjects discussed at a meeting of the Transcontinental Passenger Association at Chicago on October 16 and 17. Although considerable attention was given the subjects at the general meeting, no definite action was taken, the members adjourning to meet within a few days to determine whether summer tourist rates should be placed in effect again next year and to meet on November 19 to formulate a policy regarding coach rates.

Coast-to-Coast in 36 Hours

"Transcontinental and Western Air," beginning October 25, will carry both passengers and mail through by plane, between New York and Los Angeles, on a 36-hour schedule, 12 hours faster than the present coast to coast rail-and-air passenger service. Under the new arrangement, the planes will leave Newark (N. J.) airport at 8 a.m., Eastern time and from Alhambra, Los Angeles, at 5 a.m., Pacific time. Passengers and mail will stop over night at Kansas City and leave there the next morning, eastbound at 6:35 and westbound at 8:30. Planes will be due to arrive in New York at 6:18 p.m. and Los Angeles at 8 p.m.

Reunion 39th Railroad Transportation Corps

Fifty-one veterans of the 39th Railroad Transportation Corps, A. E. F., held a reunion at the Hotel Statler, Boston, during the recent convention of the American Legion. Of the original 800 in the organization, 60 have died since the World War. It was decided at the meeting to hold the annual reunions of the 39th R. T. C. during the annual conventions of the American Legion when these conventions are held in cities east of the Mississippi. A start was made toward raising a fund to buy the former camp site at Marcy, Nièvre, France, and erect a bronze tablet with French and English inscriptions. This tablet will be secured to the chimney of the Y. M. C. A. hut which

Three Engine Districts

St. Paul to the Coast

The Northern Pacific will on October 26 establish one of the longest locomotive runs in the United States when it begins the operation of its transcontinental passenger service between St. Paul, Minn., and the Pacific coast with only three engine districts. The longest of these will be between Jamestown, N. D., and Missoula, Mont., 904 miles. The other two districts, namely, between St. Paul and Jamestown and between Missoula and Seattle, Wash., are 344 and 656 miles in length, respectively. Locomotives of the 4-8-4 type, which have a tender capacity of 24 tons of coal and 15,000 gal. of water, will be used in this service. The new district between Jamestown and Missoula will eliminate engine changes at Glendive, Mont., and Livingston. Five years ago there were 13 engine districts on the 1,904 miles between St. Paul and Seattle.

is the only structure left on the old camp site. B. E. Ryan, 308 Central street, Elkins, W. Va., is the permanent secretary of the veterans' organization.

Drought Relief Rates To Be Continued

It was announced at the White House this week that the railways had agreed to extend the emergency reduced rates on feed and livestock which were put into effect in August to the end of November, instead of withdrawing them at the end of October, as originally intended, and that the rates would be continued to some extent after that date, subject to the results of a joint inquiry to be conducted by the railways and the Department of Agriculture into the drought situation and the methods by which the rates are applied so as to confine the benefit to actually distressed farmers. It is understood that the western roads do not expect to continue the rates after November 30.

Number of Employees Further Reduced

A further reduction in the number of railway employees took place between July 15 and the middle of August, according to the Interstate Commerce Commission's preliminary statement showing the number as of the latter date. The number as of the middle of August was 1,514,368, a reduction of 17,345 as compared with the total a month before and a decrease of 13.93 per cent as compared with August, 1929. As compared with August, 1928, the reduction was 12.50 per cent. The decrease in the maintenance of way and structures group as compared with last year was 21.61 per cent. In the train and engine service group it was 11.56 per cent.

Canadian Grade Crossing Fund

Twenty applications for contributions from the grade crossing fund are being considered by the Board of Railway Commission, with the probability of one more, in Hamilton, Ont., being shortly added to the list. Of these applications, eight involve subways in the city of Winnipeg, three in Toronto, one in Windsor, Ont., one in Quebec, at Vaudreuil, one at Three Rivers, Que., and one at Hopewell, N. S. The other proposed alterations embrace works of a different character at Windsor, Hunts Point and Lawrencetown, N. S., and Levis, Que.

Prior to the beginning of the present month, the grade crossing fund, which was established in 1909 was almost exhausted; but a contribution of \$1,000,000 from the \$20,000,000 unemployment aid fund has restored the G.C.F. to an operating basis. The estimated balance to the credit of the fund on September 29 was \$320,463.82. It now stands at \$1,320,000 in round figures. During that month, commitments in the sum of \$1,557,264.06 had been made.

Until 1927, little advantage was taken of this fund, with the result that of \$3,800,000 which had been contributed to

How Pay for Costly Highway Improvements?

"Of the \$100,000,000 bond issue which New Jersey voters will be asked to authorize in November, \$83,000,000 is proposed for highways and grade crossings. The arguments now turn on the proper means of raising the revenue to retire these bonds. Motorists from elsewhere who hurry across the State will provide some of the funds by means of a gasoline tax. And perhaps the commercial trucks which use the roads will, since they are common carriers, be required like the railroads to pay license fees sufficiently high to approximate the time which New Jersey is saving them by her road improvements. This is resisted, but its justice is apparent."

From the New York Times

it by the government at the rate of \$200,000 a year, only \$1,000,000 had been expended in the course of the 18 years of its existence. The past three years, however, have witnessed a large drain upon the resources, a great deal more money being spent annually than was contributed.

Port of New York Authority Acquiring Station Site

The Port of New York Authority has purchased or is about to acquire through negotiation 85 per cent of the property needed for its proposed union inland freight station on the block bounded by Eighth and Ninth avenues, Fifteenth and Sixteenth streets, New York City, according to a recent announcement.

This block, which is 800 ft. by 206 ft. was selected because of its strategic location as well as its size. Demolition of the block will be carried out under one contract and it is now expected that this work will start January 1.

The Port Authority now holds title outright to seventy-five per cent of the frontage on Fifteenth street. Title has been transferred to the properties on Sixteenth street with a few exceptions, while all of the Ninth avenue frontage is in the Port Authority's possession. A large part of the property facing on Eighth avenue has been secured. In all, there are sixty structures of varying types and ages on the block.

I.C.C. Not Concerned with Taxes

The Interstate Commerce Commission has issued a press notice stating that it has been receiving through the mails a great many clipped copies of a newspaper advertisement for a New York bank calling attention to the growth of railroad taxes with a footnote containing the suggestion that "every reader desiring prosperity in the country should cut this article out, put it in an envelope and mail it to the Interstate Commerce Commission, Washington, D. C."

"Apparently the officials of the bank and

the readers who forwarded the clippings are not cognizant of the fact that the Interstate Commerce Commission has no power either to impose or regulate railroad taxes," the notice said. "This statement is made public because many of the clippings are accompanied by letters commenting thereon and is the only answer the commission will undertake to make to these communications."

Western Executives Seek to Explain Condition

Executives of the western railways, that have been seeking an informal conference with the Interstate Commerce Commission for the purpose of discussing their financial condition in connection with the commission's rate-making policy, are now expected to submit something in writing which will not be related too closely to particular rate cases now pending before the commission, such as the western grain case, as to which the roads and some other interests have petitioned for a reconsideration. On a request for such a conference made last month by Charles Donnelly, president of the Northern Pacific, the commission declined to confer on the ground that it would not be proper to do so since such a discussion would necessarily involve litigated cases. Later Mr. Donnelly, F. W. Sargent, president of the Chicago & Northwestern, and H. A. Scandrett, president of the Chicago, Milwaukee, St. Paul & Pacific, consulted with Chairman McManamy and other commissioners in an effort to ascertain how they might explain their position to the commission without what might be called an ex parte discussion of a litigated case.

Crossing Safety Preached to Children

Fifty-four counties in Georgia and 18 in Alabama—all those traversed by the lines of the Central of Georgia—are to have safety lectures given in every one of their public schools, the railroad company having designated one or more of its division officers, or some other representative, to visit each school. Definiteness is given to this propaganda by the use of a letter, from the vice-president and general manager, to be coincidentally given or sent to every school officer and teacher; and this element of the campaign—the written or printed word—is carried down to the pupils themselves by presenting to each boy and girl a blotter, bearing a condensed version of the lesson to STOP, LOOK AND LISTEN at railroad crossings. The virtue of brevity, sometimes missing in safety-first movements, seems to have been very sensibly kept in mind in the present undertaking.

The need of the necessary caution in connection with school motor coaches, is the salient feature of the talks and letters. School authorities are reminded that there has not been satisfactory compliance with the rule (required by law in most of these 72 counties) that school coaches shall be stopped before passing over a railroad.

The aim will be to so fully impress the pupils of the schools with the necessary

principles of habits of caution that in case a motor coach driver is not habitually careful, his juvenile passengers will speak up and call him to account. And a clause in the message on the blotter reminds the boy or girl that he or she might well be ready to exercise this monitorship not only when traveling to or from school but also when riding in the family car.

Canadian Newsprint Rates Argument Nov. 24

Adjournment until November 24 was taken by the Board of Railway Commissioners on October 16 in connection with the hearing on the suspended increase in news print rates which the Canadian railways sought to impose on that commodity, southbound to United States points. The session began on October 7, being a continuation of those held earlier in the year.

A mass of highly technical evidence was presented to the board. News print manufacturers and users on both sides of the international boundary protested against the proposed increase and had experts in traffic management give testimony to the injury which they claimed would afflict their various businesses should the new schedule be made effective. On the other hand, the railway companies produced witnesses who sought to prove that the new rates were fair and reasonable.

A large array of counsel, both Canadian and American, were present at the hearings.

All evidence now having been submitted, argument by counsel will open on November 24.

Lake Cargo Coal Case to Be Resumed in Washington

Intervention by coal consuming interests of Michigan, Illinois, Wisconsin, Minnesota, the states of the northwest and anthracite interests, marked the closing session of the hearing on the lake cargo coal case conducted by Examiner C. M. Bardwell of the Interstate Commerce Commission at Chicago on October 6 to 16. The hearing will be resumed in Washington on November 12. The anthracite interests intervened so that if any rates which will jeopardize their business are proposed, action can be taken without delay. The coal consuming interests above mentioned entered the case to protest against any increase in freight rates on coal.

W. J. Hammond, traffic manager of the Inland Steel Company, and representing the Youngstown Sheet and Tube Company, the Interlake Iron Company and the Wisconsin Steel Company, testified that receipts of waterborne coal in the Chicago area amounted to more than 5,000,000 tons last year, and asserted that an increase of 10 cents a ton in the rate would seriously handicap Chicago steel mills in competition with others located nearer sources of supply. The same increase would mean an added cost of 15 cents a ton in coke cost. Foster M. Wintermute, rate expert for the Mich-

igan Public Utilities Commission, asserted that coal is a very important material of gas and electric companies, and that an increase would be a factor in fixing rates, the larger consumers feeling the effect first. Some consumers, he said, might be hit two or three ways by an increased cost of coal used by public utilities. Competition of natural gas will be an interesting factor, he said. C. E. Schreiber of the railroad commission of Wisconsin, presented figures to show that an increase in the rate of 10 cents would cost Wisconsin consumers \$495,000 a year, while a decrease on northern coals would save only \$195,000.

O. A. Odjard of the Detroit Edison Company said his company used 540,000 tons of lake cargo coal last year, and that it came from the southern fields as no satisfactory northern coal had been developed for the company's use. To use Ohio and Pennsylvania coal, he said, the entire furnace equipment would have to be revamped and thus there would be no saving following a reduction in the northern rates.

C. H. Benedict of the Calumet & Hecla Mining Company said that coal constitutes one-tenth to one-eighth of the cost of producing copper and that the Michigan mines are now selling copper at 10 cents a pound although the cost of production is 12 cents. He asserted any increase in the price of coal would be a major item with copper companies.

September Locomotive Shipments

September shipments of railroad locomotives from principal manufacturing plants, based on reports received by the Department of Commerce, totaled 65 locomotives, as compared with 77 in August and 75 in September, 1929. The following table gives the shipments and unfilled orders of locomotives for September 1929 and 1930, the 1929 totals and totals for the first nine months of the two years:

Year and Month	Railroad Locomotives Shipments				
	Domestic			Foreign	
	Total	Steam	Elec- tric	Steam	Elec- tric
September 1930	65	62	3	..	..
Total (9 months) 1930	617	584	17	16	..
September 1929	75	60	7	8	..
Total (9 months) 1929	592	480	32	80	..
Total (year) 1929	850	707	39	104	..
Unfilled orders, end of September					
Domestic Foreign					
Total Steam Elec- tric Steam Elec- tric					
1930	174	136	34	..	4
1929	429	347	55	27	..

Pennsylvania Asks Government Approval of Cab Signals

The Pennsylvania has petitioned the Interstate Commerce Commission for approval of its use of four-indication cab signals operated by the continuous coder

system as installed on four of its divisions and also for permission to operate in inter-divisional runs engines so equipped when the runs cover in part territory where [by the commission's orders] automatic train control of the stop and forestaller type is in use. The petition points out that when the order requiring automatic train control to be used was issued, the continuous control cab signal was unknown; and that five of its divisions have been equipped with automatic train control in conformity with the orders. The company desires to further extend its cab signal operations but is confronted with the question of operating engines equipped with cab signals train control or vice versa. At the end of this year it will have 1142 locomotives equipped with stop and forestaller and 733 equipped with whistle and acknowledgment.

Texas & Pacific Opens New Big Spring Terminal

Officers from all departments of the Texas & Pacific attended the formal opening last month of a new locomotive terminal at Big Springs, Tex. This is the third large modern terminal project completed by that road within the last three years. The facilities include a 22-stall enginehouse, Whiting drop tables, hot-water washing facilities and a Direct Steaming System operated in conjunction with a high-pressure steam plant, equipped with two 600-hp. Union water-tube boilers.

With the acquisition of super-power locomotives and the modernization of its locomotive terminal facilities, the Texas & Pacific recently attained the highest car-mile per car-day average recorded by Class I railroads and one of the lowest fuel consumption records per 1,000 gross ton-miles. Officers of that road point to the fact that every ton of through freight is being handled by modern Texas and Santa Fe type locomotives, equipped with superheaters, feedwater heaters, limited cut-off, boosters, etc. With the completion of the new Big Spring terminal, all of these locomotives are refilled and steamed on each round trip at terminals equipped with the latest facilities for the prompt and efficient handling of power.

Railroads Contest New Crossing Law in N. Y.

The suit of the New York Central and the other principal railroads in New York state contesting the constitutionality of the Dunmore act was heard in the state supreme court at Albany, on October 18; but no decision was reached and the parties are to file briefs with Judge Staley on October 30.

The Dunmore act, passed by the last legislature, says that contracts for grade-crossing elimination, under the recent constitutional amendment, must stipulate that workmen shall have the benefit of the eight hour day and shall be paid the prevailing rate of wages.

The \$300,000,000 grade crossing elimination act was brought about by an amendment to the state constitution and

that amendment specifically states that the railroads shall pay 50 per cent of the cost of all eliminations made by the use of such funds. As the case will no doubt be carried to a higher court it is probable that no new projects for grade crossing elimination work will be undertaken during the present uncertainty. The new law does not apply to contracts let before it was passed, under these contracts there is a great amount of unfinished work.

The \$300,000,000 bond issue was designed to create a fund out of which both the railroads and municipalities could borrow money from the state to pay their share of eliminations, and repay it in small annual installments to run during the lifetime of the improvement. Soon after the original grade crossing elimination act was passed, it was found that municipal finances were in such shape that very few communities could afford to incur the additional indebtedness, and the constitution was again amended to provide that the state should assume and pay 49 per cent of the elimination cost, and that the remaining one per cent, outside of the 50 per cent to be paid for by the railroads should be borne by the county in which the elimination was made instead of the city, town or village.

The Dunmore act was prepared under the supervision of the attorney-general of the state of New York. Doubts were expressed as to its constitutionality at the time of its passage, critics observing that the only excuse that the state might have for enacting legislation regulating hours and wages in this work is the special privilege the \$300,000,000 elimination law contains in allowing the railroads to borrow money from the state for use in the work. So far, the railroads have evinced little desire to take advantage of the borrowing provision. As a matter of fact in many instances the railroad company has performed all of the work and then has been compelled to wait a considerable time before it was reimbursed for the state's share of the cost.

The New York State Federation of Labor, through its legislative representatives was most insistent that this legislation be passed. Attempts were made to amend it so that it would not apply to work done by a railroad company by its own regular forces. This amendment was put into the bill and then taken out again, and the bill was passed and approved by the Governor in the form that organized labor wished it.

It was pointed out by bill drafting experts at the time of the passage of the act that the method of attack was wrong; and it was suggested that the elimination act could be simplified and its operation facilitated by putting in a clause declaring grade crossing elimination work to be public work and requiring advertisement for bids in the same manner that highway construction bids are received. At the present time contracts are not let generally by railroads by publicly advertised bidding, but a selected list of bidders is used; all bids however must be approved by the public service commission as to reasonableness.

THE INLAND STEEL COMPANY is now inquiring for two six-wheel switching locomotives.

THE CHICAGO & ILLINOIS MIDLAND is inquiring for four or five 2-10-2 type locomotives and one 2-8-2 type locomotive.

Freight Cars

THE BALTIMORE & OHIO has authorized the construction of 1,000 steel box cars and 1,000 heavy service gondola cars, one-half the work to be done at Baltimore and the other half at shops along the line of the railroad. Details will be found on page 869.

Iron and Steel

THE ERIE is expected to enter the market for 40,000 tons of rails.

THE MAINE CENTRAL has taken bids on 570 tons of steel for three bridges at various locations.

THE CHICAGO & NORTH WESTERN is expected to enter the market for 30,000 tons of rails.

THE CANADIAN PACIFIC has contracted for 100 miles of 100-lb. rail, (15,714 tons), R. E. section 39 ft. lengths to be laid on its lines in Ontario and Quebec.

THE NORTHERN PACIFIC has ordered 10,000 tons of rails distributed among the Illinois Steel Company, the Bethlehem Steel Company and the Colorado Fuel & Iron Company.

THE NEW YORK CENTRAL has ordered 200 tons of steel from the American Bridge Company for a bridge at Toledo, Ohio. This company has taken bids on 450 tons of steel for grade separation work at Bowmansville, N. Y.

THE UNION PACIFIC has ordered 45,000 tons of rails, the distribution being 19,800 tons from the Illinois Steel Company, 19,800 from the Colorado Fuel & Iron Company, and 5,400 tons from the Inland Steel Company.

THE ERIE has ordered 280 tons of steel from the American Bridge Company for repairs to a bridge at Trowbridge, Pa. This company has taken bids on 200 tons of steel for two bridges at Hackensack, N. J.

THE BALTIMORE & OHIO has ordered 2,225 tons of steel from the American Bridge Company for a bridge over the Potomac river at Harpers Ferry, W. Va., and has let a contract for 215 tons to the Fort Pitt Bridge Works for a bridge at Elwood City, Pa.

Equipment and Supplies

Locomotives

Signaling

THE ATCHISON, TOPEKA & SANTA FE has ordered from the General Railway Signal Company an electric interlocking for Augusta, Kan., 34 working levers.

THE LEHIGH VALLEY has ordered from the General Railway Signal Company, a central traffic control machine for Hazleton Junction, Pa.; four working levers. The mechanical interlocking at this junction will be displaced and with the new machine the switches and signals at the junction will be controlled from the yardmaster's office at Locust Junction, $\frac{3}{4}$ mile distance.

THE BOSTON & ALBANY has ordered from the General Railway Signal Company a central control traffic machine, nine working levers, for Brookline Avenue, Boston, Mass., the junction of the Newton Highlands branch. The mechanical interlocking at the junction will be displaced and with the new machine the switches and signals will be controlled from Tower 7, one mile east of the junction.

Electro-pneumatic Interlocking for New Cincinnati Terminal

The Cincinnati Union Terminal Company has awarded to the Union Switch & Signal Company a contract for the installation of an electro-pneumatic interlocking plant at the new Cincinnati union station. The entire interlocking facilities, comprising the layouts on both sides of the station, will be controlled and operated from one machine, which will be installed in a room especially constructed for that purpose in the station building itself. This interlocking machine will have 231 levers, for the operation of 71 switches, 40 double slips with movable point frogs, and 131 color-light signals; and for traffic direction and check locking. The illuminated track diagram, will be provided with two indication lights for each track section, and indication lights to repeat the indications of signals. The roads using this terminal are the Pennsylvania, the Baltimore & Ohio, the Cleveland, Cincinnati, Chicago & St. Louis, the Chesapeake & Ohio, the Louisville & Nashville, the Norfolk & Western and the Southern.

Great Western of Great Britain to Extend Train Control

Automatic train control now in operation on the Great Western Railway of England between Paddington (London), Swindon, Oxford and High Wycombe, 372 track miles, is to be extended to all main lines to Weymouth, Plymouth, Bristol, Taunton, Newport, Swansea, Hereford, Gloucester and Wolverhampton, 1,758 miles. Two thousand additional locomotives will be equipped and the total cost of the project will exceed a million dollars. When the work is completed, the railway will have 2,130 track miles and 2,334 locomotives equipped for automatic train control.

Supply Trade

C. R. Robinson of Chicago, vice-president of the **Inland Steel Company**, has been appointed an executive member of the **Railway Business Association**.

L. L. Caskey, assistant manager of the strip steel division of the **Republic Steel Corporation** has been appointed assistant manager of sales for the Philadelphia, Pa., district.

W. S. Stewart, formerly in charge of the Pacific Coast offices of the **Lincoln Electric Company**, Cleveland, Ohio, has been appointed district manager in charge of the Cleveland territory with headquarters at the factory. Mr. Stewart is a graduate of Yale University. He subsequently spent a number of years in the factory of The Lincoln Electric Company studying arc welding, and later was transferred to the automatic arc welding department where he spent several years. He was then transferred to the sales department and assigned to the Pacific Coast.

Frederick M. Kreiner, who has been elected a vice-president of **Manning, Maxwell & Moore, Inc.**, New York, retaining also his duties as secretary and treasurer, has been connected with that company since 1903. He has been sec-



Frederick M. Kreiner

retary and treasurer since 1920. Prior to his association with Manning, Maxwell & Moore, Inc., Mr. Kreiner served for several years in the motive power department of the Pennsylvania. He is also a member of the New York bar, having been admitted in 1905.

The **American Rolling Mill Company** has organized a railroad division of its sales forces with headquarters at the general offices at Middletown, Ohio, which will combine the handling of wrought-steel wheels, iron and steel sheets and various other products. **Logan T. Johnston**, recently assistant to the vice-president in charge of the commercial activities of the forged-steel wheel division has been appointed man-

ager of the railroad division and **H. M. Arrick**, who has been connected with the sales department of the company, has been appointed assistant manager. **C. G. Bacon** has been appointed director of wheel research. Three district offices of the railroad division have been established in charge of **W. B. Quail** at New York, **Ernest Baxter**, who is also vice-president in charge of railroad sales of the **Sheffield Steel Corporation**, at Chicago, and **F. E. Finley** at St. Louis, Mo.

Stanley Bracken, assistant engineer of manufacturing of the **Western Electric Company** at Hawthorne, Chicago, has been appointed executive vice-president of the **Teletype Corporation** at Chicago, which was recently acquired by the Bell System. Mr. Bracken was born at Blair, Neb., on March 14, 1890, and graduated from a course in elec-



Stanley Bracken

trical engineering at the University of Nebraska in 1912. In the same year he entered a student course of the **Western Electric** at Hawthorne, beginning a period of 18 years in the service of that company, mostly as an engineer on telephone cable. For two years he acted as a consultant in Japan for the **Japanese Associated Western Electric Company**, which at that time was a subsidiary of the **International Western Electric**, formerly a part of the **Western Electric Company**. Upon his return from Japan he became a technical superintendent on the vice-president's staff at Hawthorne Works, and in June, 1929, he was appointed assistant engineer of manufacturing at Hawthorne. His appointment as executive vice-president of the **Teletype Corporation** became effective on October 1.

Obituary

Frank M. Hicks, who in 1900 and 1901 engaged in the railway supply business in Chicago and who later was pres-

ident of the **Hicks Locomotive and Car Works**, died in Cedarville, Ill., on October 12 at the age of 70 years.

Frank Baackes, vice-president of the **American Steel & Wire Company**, Chicago, died on October 18, following an illness of more than a years duration. He was born in Germany on March 9, 1863, and came to America at the age of 15, following a year's employment in wire nail mills at Oberbilk-Dusseldorf. From 1879 to 1881, he was connected with the nail business in Cleveland and in the latter year was employed by the **Hartman Steel Company** at Beaver



Frank Baackes

Falls, Pa., to assist in the construction of its wire nail plant. While in the employ of the latter company, he undertook a series of experiments which resulted in producing what is now known as the standard wire nail. In July, 1885, he organized and became general manager of the **Salem Wire Nail Company**, of Salem, Ohio, which position he held until April, 1898, when the company was absorbed by the **American Steel & Wire Company** of Illinois, of which he became general manager. Upon the absorption of this company in January, 1899, by the **American Steel & Wire Company** of New Jersey, he was promoted to general superintendent and in 1900, was elected general sales agent and a director of the company. In 1905, he was elected vice-president, which position he has held until his death.

Trade Publication

GAS PLUS AIR—The **Bucyrus-Erie Company**, South Milwaukee, Wis., has issued a 16-page booklet, illustrated in colors, which presents a lucid exposition of the advantages of shovels powered with a gasoline-engine, air-compressor unit, the compressed air being used to drive three independent air engines for the operation of the hoisting, swinging and crowding functions of the machine. Particular attention is given to comparisons with machines equipped with single-engine units, in which power for each function must be transmitted through clutches.

Construction

ATLANTIC COAST LINE.—The Interstate Commerce Commission, Division 4, has issued a report finding that a certificate of public convenience and necessity under section 1 of the interstate commerce act is not necessary for the construction by this company of a line from Yuste to Monticello, Fla., 4.8 miles, in obedience to the mandate of the supreme court of Florida, which had ordered the company to restore operation over the line after it had been abandoned without authority from the commission. The company had applied to the commission during the pendency of court proceedings for a certificate authorizing the abandonment but the commission held it was without jurisdiction to ratify an abandonment which had already taken place. Then the company applied for a certificate for a reconstruction of the line if the commission thought it should be built and the commission has dismissed the application on the ground that the court's order is either enforceable in itself and without any action on the commission's part or it is invalid. Commissioner Eastman, dissenting, took the position that the commission should ascertain whether public convenience and necessity require the line instead of allowing that question to be lost sight of in the confusion of jurisdictional questions.

ATCHISON, TOPEKA & SANTA FE.—This company plans the construction of a 319-acre industrial terminal fronting on the Richmond inner harbor of San Francisco bay. The project involves the filling of 162 acres of submerged land which has been owned by a subsidiary, the Santa Fe Land & Improvement Co.

BALTIMORE & OHIO-ERIE.—These railroads, together with the Northern Ohio Power & Light Co., will participate in construction which will effect the elimination of two grade crossings at Leavittsburg, Ohio, at a cost of about \$300,000.

BALTIMORE & OHIO.—A new double-track bridge 1,400 feet long will be built by this company across the Potomac River at Harper's Ferry, W. Va., to replace the present span at that point. The new bridge will consist of eleven deck-plate-girder spans, requiring 2,200 tons of structural steel and 4,000 cubic yards of concrete. Work has been started. In addition to the new bridge, the line of railroad will be changed to afford easier crossing of the river by reducing the curvature and shortening the line. These improvements will cost \$800,000.

BUFFALO, ROCHESTER & PITTSBURGH.—The Public Service Commission of New York has designated the elimination of four grade crossings in the town of Great Valley, Cattaraugus County, N. Y., at an estimated cost of \$250,000.

CANADIAN NATIONAL.—In connection with its Montreal terminal improvements, this company has awarded contracts for

the construction of two bridges to carry Guy and Mountain streets across its trackage at the entrance to the Bonaventure street station. The masonry, abutments and approaches will be installed by the Kennedy Construction Company of Montreal, while the steel superstructure will be erected by the Dominion Bridge Company. Work on these two bridges, which were described in the *Railway Age* of September 20, will be begun at once.

CANADIAN NATIONAL.—A contract has been awarded to the Northern Construction Company, Vancouver, B. C., for the reconstruction of a dock at the foot of Main street, Vancouver, which was recently destroyed by fire. This company also plans the construction of a freight shed at Fort William, Ont. A new brick passenger station at Parry Sound, Ont., for the construction of which the railroad recently received bids, will be constructed by company forces. This company plans the construction of a 10-story brick and stone hotel at Saskatoon, Sask., with a capacity of about 275 rooms.

CANADIAN PACIFIC.—A contract for the alteration, at a cost of \$65,000, of a building at Windsor, Ont., which will serve as a ticket, telegraph and express office, has been awarded to the John V. Gray Construction Company, Toronto, Ont. This road plans the immediate construction of a new stock yard at Lethbridge, Alta., at a cost of \$50,000. When completed it will be operated under lease by the Southern Alberta Co-operative Association.

CANADIAN PACIFIC.—Contracts have been awarded by this company for grading for the construction of 100 miles of branch lines in Saskatchewan. The new branch lines and the contractors are as follows: Completion of the line from Nipawin, Sask., to Henribourg, 20 miles, to Fred Mannix, Calgary, Alta.; Rose town, Sask., to Gunnworth, 20 miles, to Foley Brothers, Winnipeg, Man.; Medstead, Sask., to Meadow Lake, 35 miles, to Fred Mannix; Hamlin, Sask., northeasterly 25 miles, to Roos & Wickstrand, Vermillion, Alta.

ERIE.—The Public Service Commission of New York has designated for elimination the Sawyer crossing, two miles east of Owego station, Tioga County, N. Y. The estimated cost of the improvements is about \$164,853. The commission has also approved a revised general plan and estimates of cost of \$262,400, exclusive of land and damages in connection with the elimination of the Big Tree Road crossing of the Erie in the town of Hamburg, Erie County, N. Y.

GREAT NORTHERN.—The Interstate Commerce Commission, at the request of this company, has dismissed its application for a certificate authorizing the construction of a line from Richey to Lewistown, Mont., 249 miles, and has cancelled a

hearing at Lewistown set for October 27 on this application and one of the Northern Pacific for authority to build a line from Brockway to Lewistown, 208 miles. The Great Northern filed a formal petition asking that its application be dismissed, giving financial conditions as the reason.

LEHIGH VALLEY.—The New York Public Service Commission has designated for elimination the Tioga street crossing at Spencer, Tioga County, N. Y. The estimated cost of the work is \$121,200, exclusive of land and property damages.

MICHIGAN CENTRAL.—A contract has been awarded by the Ontario Highways Department to the Grant Brothers Construction Company, Ottawa, Ont., for the construction of a viaduct to carry King's highway over the tracks of this company at Waterford, Ont. The cost of this work will be about \$160,000.

MISSOURI PACIFIC.—A contract has been awarded to the Kellermann Contracting Company, St. Louis, Mo., for the construction of a three-story concrete, brick and steel interlocking tower on Carroll street, St. Louis, near the southern railway approach to the Municipal bridge.

NORTHERN PACIFIC.—The Interstate Commerce Commission has dismissed this company's application for a certificate authorizing the construction of an extension from Brockway to Lewistown, Mont., 208 miles.

SOUTHERN PACIFIC.—This company has filed a petition with the City Public Service Commissioner, New Orleans, La., for permission to construct in that city a perishable fruit and vegetable terminal at a cost of about \$900,000.

C. N. R. Construction Program

A new freight shed at Fort William, Ont., to replace the structure destroyed by fire a few weeks ago, track laying of 140 miles of new branch lines in the Prairie Provinces and the relaying of more than 100 miles of the company's main line trackage in western Canada, is provided for in the emergency construction projects of the Canadian National. These are the works specially undertaken after conference between government and the railways for the purpose of stimulating employment and business activities in the Dominion. The Canadian National already has extensive works under way in western Canada which will be proceeded with. These include such projects as the construction of the hotels at Saskatoon, Sask., and at Vancouver, B. C., and the construction of the new steamship docks at Vancouver to replace those recently destroyed by fire. The special program, on the cost of which the Dominion government is assuming interest charges for a limited period, is in addition to the program which the company had already arranged to commence this fall and winter, which program has not yet been announced but which will, with the special program now brought forward, provide for construction and improvement activities in every section of the Dominion.

Financial

CANEY VALLEY.—Bonds.—The Interstate Commerce Commission has authorized this company to extend to 1936 the maturity of \$100,000 of first mortgage 5 per cent bonds and the Ohio & Kentucky railway has been authorized to assume obligation as guarantor of these bonds.

FONDA, JOHNSTOWN & GLOVERSVILLE.—Acquisition.—This company has applied to the Interstate Commerce Commission for authority to acquire and operate the line of the Gloversville & Broadalbin, from Gloversville to Broadalbin, N. Y., 6.15 miles.

LAKE PROVIDENCE TEXARKANA.—Abandonment.—The Interstate Commerce Commission has authorized this company to abandon a line extending from Sandheimer, La., to Dark Swamp, 8 miles.

MOUND CITY & EASTERN.—Increase in Capitalization.—This company, which is constructing a railroad between Mound City, S. D., and Leola, has filed an amendment to its articles of incorporation with the secretary of state at Pierre, S. D., increasing the amount of its capital stock from \$500,000 to \$1,200,000.

NEW YORK CENTRAL.—Abandonment.—This company and the Michigan Central have applied to the Interstate Commerce Commission for authority to abandon the Johannesburg branch of the Michigan Central, from Sallings Junction to Johannesburg, Mich., 15 miles.

NEW YORK CENTRAL.—Control of Lansing Manufacturers Railroad.—The Interstate Commerce Commission has authorized this company and the Michigan Central to lease the Lansing Manufacturers Railroad in Lansing, Mich.

SEABOARD AIR LINE.—Abandonment.—The Interstate Commerce Commission has authorized this company to abandon a 5.8-mile line from Richland, Ga., to Kimbrough.

TEXAS & NEW ORLEANS.—Trackage Right Abandonment.—The Interstate Commerce Commission has authorized this company and the Lake Charles & Northern to abandon operation under trackage rights over the Jaespar & Eastern between De Ridder, La., and Nitram, 20.7 miles.

Dividends Declared

Kansas Oklahoma & Gulf.—Preferred A, B, and C, 3 per cent, payable December 1 to holders of record November 20.
Midland Valley.—Preferred, \$1.25, payable December 1 to holders of record November 22.
New Orleans, Texas & Mexico.—\$1.75, quarterly, payable November 29 to holders of record November 14.

Average Prices of Stocks and of Bonds

	Oct. 21	Last week	Last year
Average price of 20 representative railway stocks.	96.78	99.73	150.71
Average price of 20 representative railway bonds.	94.78	94.97	91.44

THE CITY COUNCIL of East Liverpool, Ohio, has enacted an ordinance, which becomes effective on November 15, fixing the speed of railway trains through the town at 15 miles an hour. The Pennsylvania is the only steam railroad operating through East Liverpool.

* * *



The Delaware, Lackawanna & Western Station at Paterson, N. J.

Some unusual problems were encountered in the construction of this recently completed station because of the location of the railroad tracks on a shelf around the base of a mountain. As finished, the station stands at the end of an approach plaza, with ticket offices and baggage room on the street level, waiting room on the track level, and a subway connecting the east and west bound platforms.

Railway Officers

Executive

Frazer L. Ford, president of the First National Bank of St. Joseph, Mo., has been elected president of the Quincy, Omaha & Kansas City.

F. A. Gideon, vice-president and general superintendent of the Newburgh & South Shore, has been elected president and general manager, with headquarters as before at Cleveland, Ohio. **J. E. Mullaney**, trainmaster, has been elected vice-president, with headquarters at Cleveland.

Financial, Legal and Accounting

H. H. Kelly has been appointed assistant auditor of the Nacozari, with headquarters at Douglas, Ariz., succeeding **N. O. Rucker**, who has retired because of ill health.

A. B. Prentice has been appointed secretary and treasurer of the Newburgh & South Shore. **F. C. McGee** has been appointed assistant secretary and assistant treasurer and **L. DuRand** has been appointed assistant auditor. All of these officers will have headquarters at Cleveland, Ohio.

John A. Soule who was appointed general solicitor of the Toronto, Hamilton & Buffalo on September 15, succeeding **E. D. Cahill**, deceased, as announced in *Railway Age* of September 27, page 643, was born at Tapleytown, Ont., on February 23, 1879. Mr. Soule received his A. B. degree from the University of Toronto in 1902, and his



John A. Soule

L.L.B. from Law School Osgoode Hall in 1905, being admitted to the bar in September of the latter year. After one year of private practice he joined with the late Mr. Cahill, then general solicitor of the T. H. & B., in forming the firm of Cahill & Soule, thereby first be-

coming connected with the T. H. & B. legal department in 1906. This partnership which engaged also in general practice continued until the death of Mr. Cahill on September 11. During the latter's tenure of office Mr. Soule was in charge of the T. H. & B. litigation and its work before the Board of Railway Commissioners for Canada.

Operating

W. J. Hogan, superintendent of the Pontiac (Mich.) terminals of the Grand Trunk Western, has been appointed superintendent of the Chicago division, with headquarters at Battle Creek, Mich., succeeding **D. T. Crawford**, deceased.

Effective October 1, the office of the superintendent of freight transportation of the New York Central, Buffalo and East, was abolished and all duties connected therewith were taken over by **G. Metzman**, manager, freight transportation, with headquarters at New York.

William E. Leonard has been appointed trainmaster of the Second subdivision of the Fond du Lac division of the Minneapolis, St. Paul & Sault Ste. Marie, with headquarters at Fond du Lac, Wis., succeeding **Ralph O. Jensen**, who has been transferred to the Gladstone division, with headquarters at Gladstone, Mich.

R. S. Foulk, passenger trainmaster on the Panhandle division of the Pennsylvania, has been appointed assistant trainmaster with supervision over passenger operations. The title of freight trainmaster on the Panhandle division has been changed to trainmaster with jurisdiction over both freight and passenger operation.

Traffic

L. J. Dauback has been appointed general agent for the Texas & Pacific at Los Angeles, Cal.

J. A. Maguire has been appointed general agent for the Chicago, Springfield & St. Louis at New York.

T. I. McGrath, district freight and passenger agent for the Union Pacific at Tacoma, Wash., died at St. Vincent's hospital at Portland, Ore., on October 16.

William H. Kreling, traveling agent for the Chicago & North Western at Buffalo, N. Y., has been promoted to general agent at Kansas City, Mo., succeeding **Albert O. Olson**, who has been transferred to Pittsburgh, Pa. Mr. Olson replaces **James J. Livingston**, who has been transferred to San Francisco, Cal., where he succeeds **R. V. Holder**, deceased.

S. M. Lundberg, general agent in the passenger department of the Chicago Great Western at Omaha, Neb., has been promoted to assistant general pas-

senger agent at Kansas City, Mo., succeeding **H. E. Redlingshafer**, who has resigned. **H. T. Minkler**, district passenger agent at Omaha, has been promoted to general agent, passenger department at that point to succeed Mr. Lundberg.

Effective October 1, **Brooks G. Brown** was appointed general freight traffic manager of the Southern, at Washington, D. C., and **George H. Wilcox** was appointed freight traffic manager at Atlanta, Ga., as announced in *Railway Age* of October 4, page 728.

Mr. Brown was born at Decatur, Ga., on December 2, 1880, and was educated in private schools and at the Donald Frazier School for Boys at Decatur. He commenced his railroad career with the Southern on December 1, 1899, and occupied various clerical positions in the general freight department until June 1, 1911, when he was appointed chief clerk to the general freight agent at Atlanta, Ga. On September 1, 1913, he became assistant general freight agent at Atlanta, and on January 1, 1917, he was promoted to general freight agent at Washington, D. C. From June, 1918 to March, 1920, during government operation, he was connected with the division of traffic, and on the return to corporate control on March 1, 1920, he was appointed assistant general freight agent of the Southern at Washington, D. C. On April 1, 1922, he became assistant freight traffic manager and on October 16, 1924, he was promoted to freight traffic manager. His headquarters was changed to Atlanta, Ga., on August 1, 1925, and he served as freight traffic manager at that point until his recent promotion as general freight traffic manager at Washington, D. C.

Mr. Wilcox entered the service of the Southern as commercial agent at Cincinnati, Ohio, in 1907. He was promoted to assistant general freight agent of the Georgia Southern & Florida at Macon, Ga., in November, 1911, and on March 1, 1920, he became assistant to the freight traffic manager of the Southern at Washington, D. C. On November 1, 1922, he was promoted to assistant freight traffic manager at Birmingham, Ala., and was transferred to Atlanta with the same title, on October 14, 1924, which position he held until his recent promotion.

Engineering, Maintenance of Way and Signaling

J. L. Tanner has been appointed office engineer of the Missouri-Kansas-Texas Lines at Dallas, Tex., succeeding **L. E. Willis**, who has resigned.

R. E. Butler, engineer maintenance of way of the Newburgh & South Shore, has been promoted to chief engineer, with headquarters as before at Cleveland, Ohio.

E. H. Roth, assistant engineer of the Norfolk & Western at Norfolk, Va., has been transferred to Bluefield, W. Va.,

with jurisdiction over engineering and construction matters on the Pocahontas division, succeeding **J. W. Raitt**, deceased. **H. N. White** has been appointed assistant engineer at Norfolk, Va., with jurisdiction over engineering and construction matters on the Norfolk terminals and Norfolk division.

Alfred C. Clarke, who has been appointed assistant chief engineer of the Baltimore & Ohio, with headquarters at Pittsburgh, Pa., was born at Grantham, Ont., Canada on May 16, 1888. He was educated in the Elkhart (Ind.) high school (1901-05), and Purdue University (1911-15). After graduating from high school, Mr. Clarke was engaged in general railroad and construction work for the Lake Shore & Michigan Central (now New York Central) near South Bend, Ind., where he served as chief clerk to the superintendent of the ballast manufacturing plant operated by that railroad. From March, 1906, to April, 1907, he was clerk and time-keeper for the Lake Shore & Michigan Southern at Elkhart, Ind., and in May, 1908, he was appointed chainman and note book keeper on retracement and resurvey work for the Canadian Government. He became statistician and chief of the Bureau of Information and



Alfred C. Clarke

Statistics, Department of Agriculture of the Province of Saskatchewan, Canada, in October, 1908, and in August, 1909, he was appointed assistant engineer on base line and exploration work for the Canadian government survey system. He entered the employ of Reilly, Dawson & Reilly, Regina, Canada, as engineer in charge of field work in January, 1911, remaining with that company until September, 1911. Mr. Clarke attended Purdue University from September, 1911 to 1915, working during the summer vacations consecutively with Reilly, Dawson & Reilly as engineer, as inspector of bridge construction for the department of highways and bridges of the Canadian Government and later as special engineer, reporting to the street commissioner, for the City of Winnipeg, Canada. During this latter period, from 1911 to 1915, Mr. Clarke worked with Dr. W. K. Hatt of Purdue University and others of his staff who were en-

gaged as consulting engineers on flood prevention work and other important projects. He also worked intermittently as map draftsman for the Lafayette (Ind.) Telephone Co. In June, 1915, Mr. Clarke became special engineer in the operating department of the Baltimore & Ohio at Baltimore, Md., where he was engaged in investigating and compiling special reports on railroad operating and industrial projects. In July, 1916, he was appointed chief of the facilities bureau in the traffic and commercial development department of the B. & O. at the same point. He was advanced to the position of assistant to the chief engineer of that road in May, 1917, serving in that capacity until November, 1918, when he was appointed district engineer at Pittsburgh, Pa. This latter position was recently abolished and Mr. Clarke was appointed assistant chief engineer of the B. & O. at the same point. The two most important projects with which Mr. Clarke was associated while engaged as district engineer included the construction of the Glenwood shops of the B. & O. and a bridge over the Allegheny river at Thirty-third St. in Pittsburgh.

Mechanical

R. B. Kleinfeld, foreman of car repairs of the Newburg & South Shore, has been promoted to master car builder, with headquarters as before at Cleveland, Ohio.

Purchases and Stores

F. A. Carlson has been appointed auditor and purchasing agent of the Newburgh & South Shore, with headquarters at Cleveland, Ohio.

The headquarters of **W. S. King**, tie and timber agent of the Chesapeake & Ohio, at Richmond, Va., and those of **W. C. Atherton**, purchasing agent of the Pere Marquette at Detroit, Mich., have been removed to Cleveland, Ohio.

R. F. Miller, general storekeeper of the Oregon Short Line, with headquarters at Pocatello, Idaho, has been appointed district storekeeper of the Oregon-Washington Railroad & Navigation Company, with headquarters at Portland, Ore. **F. E. Cragin**, general storekeeper of the Los Angeles & Salt Lake, has been appointed district storekeeper of that road with headquarters as before at Los Angeles, Cal. The positions of general storekeepers at Portland and Los Angeles have been abolished.

Special

The lines of the East Bay Electric division of the Southern Pacific, comprising 50 miles of electrified lines in the vicinity of Oakland, Cal., were made a part of the Western division on October 16. **J. C. McPherson**, superintendent of the East Bay Electric di-

vision, has been appointed general representative, with headquarters as before at Oakland. He will represent the operating department in public relations in East Bay cities, and have charge of Southern Pacific real estate in Alameda and Contra Costa counties. **C. A. Veale**, assistant superintendent of the East Bay Electric division, has been appointed assistant superintendent of the Western division. **F. E. Sullivan** has been appointed trainmaster of the Western division. **W. H. Phelps**, division engineer of the East Bay Electric division, has been appointed assistant division engineer of the Western division. These officers will have headquarters at Oakland Pier, Cal. **L. A. Mitchell**, master mechanic (electric) of the East Bay Electric division, has been appointed assistant master mechanic of the Western division, with headquarters as before at West Alameda.

Obituary

H. C. Conley, retired assistant general freight agent of the St. Louis-San Francisco at Oklahoma City, Okla., died in a hospital at Joplin, Mo., on October 9, at the age of 72 years.

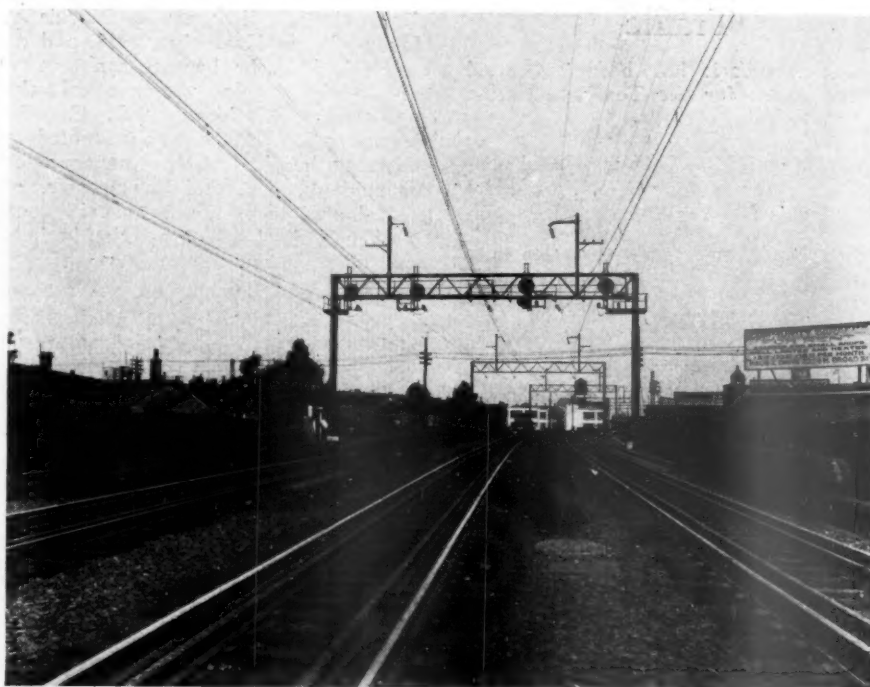
W. S. Chandler, who was receiver of the Coos Bay, Roseburg & Eastern Railroad & Navigation Co. (now part of the Southern Pacific) from 1901 to 1906, died at Marshfield, Ore., on October 13.

Sampson S. Huffman, assistant superintendent of the Chicago & Eastern Illinois at St. Louis, Mo., died in the Lutheran hospital in that city on October 8. Mr. Huffman was 68 years of age and had been connected with the C. & E. I. for 38 years.

A. W. Foster, formerly president of three railroads that now form parts of the Northwestern Pacific, died at San Rafael, Cal., on October 14 at the age of 80 years. From 1894 to 1908 Mr. Foster was president successively of the San Francisco & North Pacific, the California Northwestern and the North Shore.

Frank J. Easley, former general manager of the Denver & Rio Grande and general superintendent of transportation of the Cuba Railroad, who died on October 12, had been in railway service for 46 years at the time of his retirement in 1925. He was born at Apple River, Ill., on August 18, 1860, and entered railway service in 1879 as a brakeman on the Kansas Pacific (now part of the Union Pacific). From 1882 to 1895 he was advanced from brakeman, through various positions in the operating department, to division superintendent on the Atchison, Topeka & Santa Fe. He served as division superintendent on the Santa Fe at Newton, Kan., and Las Vegas, N. M., on the Mexican Central at San Luis Potosi, S. L. P., and on the Chicago, Rock Island & Pacific at Des Moines, Iowa. In 1912 he was promoted to assistant general manager of the Rock Island at Des Moines, then serving as assistant general manager and general manager of the Rio Grande at Denver, Colo., and general manager of the Peoria Railway Terminal Company at Peoria, Ill. During government control of the railroads he was a member of Railway Board of Adjustment No. 3 of the United States Railroad Administration, immediately following which he became general superintendent of transportation of the Cuba Railroad at Camaguey, Cuba.

* * * *



The First Completed Section of Catenary and Overhead Construction for the Reading's Philadelphia, Pa., Suburban Electrification



Railway Age

Motor Transport Section
Devoted to the
Coordination of Railway and Highway Service

Vol. 89 October 25, 1930 No. 17
Name Registered U. S. Patent Office



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F. L. Jacobus
Associate Editor

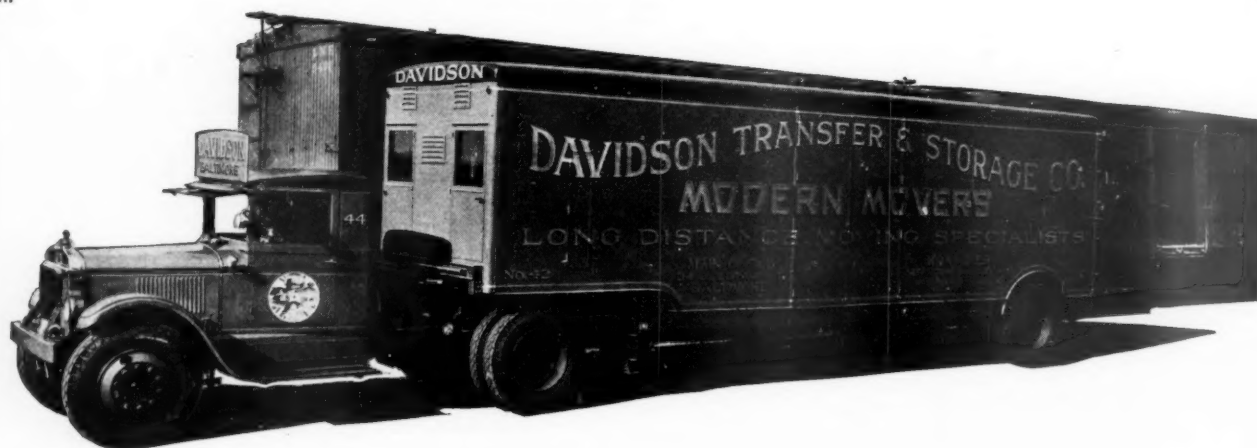
John C. Emery
Motor Transport Editor

Walter J. Taft
Associate Editor

The Railway Age is a member of the Associated Business Papers (A. B. P.) and of the Audit Bureau of Circulations (A. B. C.)

This Picture Provides Food for Thought for Every Alert Railroad Executive • • •

A motor truck big enough to haul the entire contents of a freight car. A motor truck so well built that its dependability is equal to that of the railroad. A motor truck of unusually low operating economy. A motor truck so fast that it can improve and maintain established time schedules. » » » With these advantages to offer, the Autocar tractors owned by Davidson Transfer & Storage Company, of Baltimore, Md., are busy making money, as are the freight-carrying Autocars of many another furniture hauler. » » » Those progressive railroads that have equipped themselves with competent Autocar motor trucks to take advantage of new opportunities, are finding, too, that there is money to be made in motor truck transportation. » » » Who makes that money does not concern the Autocar Company. Building trucks to do it is their purpose—a purpose in which, happily, they have achieved a national reputation.



This mammoth tractor-trailer unit is one of a big fleet of Autocars hauling overland freight for Davidson Transfer & Storage Company of Baltimore, Md. It is as big as a freight car and will hold the contents of an average 10- or 12-room house. Its precision-built construction cuts depreciation and operating costs to a minimum.

AUTOCAR TRUCKS

THE AUTOCAR COMPANY, ARDMORE, PA.

When Motor Coaches Fail

THE Nashville, Chattanooga & St. Louis, which four years ago substituted motor vehicle service for passenger train service on one of its branch lines in Tennessee, has given up its highway operation on account of losses incurred. It has not reverted to passenger train service over this line, but is meeting the situation of dwindling passenger traffic by furnishing a minimum of service—one round trip daily of a mixed train.

Changing conditions caused the failure of the N. C. & St. L. motor coach service. In 1926, when it effected its substitution of highway for railway passenger service, the traffic moving over the branch line, while far from adequate to pay the cost of train operation, was of sufficient volume to earn revenues which approached the operating expenses of the highway service. These motor vehicle operating expenses, incidentally, were higher than those ordinarily involved in the operation of motor vehicles substituted for branch line passenger train service, for the reason that the N. C. & St. L. not only operated several motor coaches to handle passengers, but it also employed two motor trucks to carry mail, baggage and express.

The passenger train service in 1926 was being operated at a loss of about two thousand dollars a month. The operating loss of the motor vehicle service was less than \$3,000 in the six months' period from July to December, 1926. In other words, the motor vehicle service of the N. C. & St. L., while not profitable in itself, was profitable to the railroad by reason of the saving in train operating expenses which it made possible.

The same factors which caused the decline of passenger traffic on the trains operated before the substitution of motor vehicle service have recently caused the abandonment also of the highway service, although these factors have been greatly magnified during the last three years. Improved roads opened up in the vicinity of the N. C. & St. L. motor coach and truck line have effectively drained traffic from it. These highways parallel the branch line of the railway between two points and intersect it at others, providing shorter and more convenient means of entrance and exit to and from the region served by the railway branch. With these improved highways in service, independently operated motor coach lines, with

certificates from the Tennessee commission, began to compete with the railway and its own motor coaches for traffic.

More important than these competitive motor coach lines, however, has been the increased use of private automobiles in the territory, resulting from the improvement of the highways. These railway competitors, both publicly and privately owned, reduced the traffic handled in the railway motor coaches almost to the vanishing point. In the last six months of 1926, the railway motor coaches carried 26,188 passengers. During the first six months of this year, only 5,432 passengers were carried.

This experience of the N. C. & St. L. with motor vehicle operation emphasizes a point which is of vital importance to railways contemplating the substitution of motor coach service for passenger train service. The motor coach is not a cure-all, and it cannot in itself completely solve the problem of dwindling traffic on branch lines. The motor coach can be operated with substantially smaller expense than a passenger train, and it can, therefore, effect savings in operating expenses for the railways. But it offers no guarantee that it will stop the decline of traffic. In situations such as that of the N. C. & St. L., it is unlikely that motor coaches will hold the traffic. Possibly the traffic might have been held had the N. C. & St. L. taken advantage of the existence of the new highways to put its own motor coaches on those routes, but that is merely conjecture.

The fundamental lesson to be learned from the N. C. & St. L.'s experience is that too much should not be expected from the motor coach. It offers the railways an opportunity to provide good passenger service at the lowest possible cost. Under favorable conditions, it may earn a profit on its own account, but this depends largely upon whether or not the railway operating it chooses to use it solely for train replacement, or instead, by more attractive service, as a means of traffic cultivation. But the motor coach is no panacea; it is merely an effective instrument which many railways in a variety of ways are using to reduce operating expenses while providing their patrons with the best possible service consistent with today's conditions and today's needs.

Motor Coach Fares

EFFORTS are being made by certain interests to stabilize motor coach fares for long-distance transportation on the basis of a mileage rate said to be—reports differ—somewhere between 2 cents and 2¾ cents a mile. At the same time, efforts are being made to fix a differential between railroad coach rates and motor coach rates.

Stabilization of motor coach fares is a thing heartily to be desired. In some respects, furthermore, a differential between railway rates and motor coach rates may be advisable. It is difficult, however, to see in what way anything in this direction can be accomplished at this time. The motor coach operators of the country have never acted together, and there is no reason to believe that they are ready to join now in a nation-wide stabilization of motor coach rates. The motor coach companies now seeking such stabilization are large and powerful, in addition to being well organized and efficiently operated. These companies are ready and willing—even anxious—to come to some agreement among themselves and with the railways. But are there not too many motor coach operators of another kind, who have been rate-cutters from the beginning, and who will always be rate-cutters, since they seem to know no other way to attract passengers to their motor coaches?

When Congress sees fit to place the regulation of interstate motor coach lines under the jurisdiction of the Interstate Commerce Commission, real progress may be made in the stabilization of motor coach fares. Until such time, however, efforts in that direction appear to be doomed to failure.

Motor Transport Division to Meet in Chicago

THE Motor Transport Division of the American Railway Association will hold its second meeting of the year in Chicago next month. The central location of the meeting place, the present fever-pitch of interest in the relationships of motor and railway transport, and the efforts which officers and committees of the division have given to the preparation of a constructive and well-rounded program, give apparent assurance that the Chicago meeting will be one of the most successful ever held.

In the opinion of many, the Motor Transport Division found itself at Atlantic City last June. Preparation for the meeting to be held in Chicago next month began immediately upon the adjournment at Atlantic City. Members of the various committees met in Chicago a few weeks ago to complete their preparations. The Motor Transport Division is one of the hardest working of the railway associations. It is doing an important work for the railroads of the country and it deserves their full support. Every railway should be represented at the Chicago meeting by officers of their motor transport, operating, traffic and other departments, if possible.

Giving Services Patrons Want

ELSEWHERE in this issue appears the letter of W. H. Chandler, manager of the traffic bureau of the Merchants' Association of New York, commenting on L. B. Young's article entitled "Truck Competition Is Taking the Railways' Carload Traffic" which was published in the September *Motor Transport Section*.

This letter embodies pertinent criticisms of railway policies from a representative of large metropolitan business interests. For example, Mr. Chandler calls motor truck service a superior form of transportation with respect to comparatively short hauls, since it offers advantages to the shippers "that the railroads decline to provide." Turning next to co-ordinated rail-highway freight service, the writer sketches the generally accepted meaning of these terms but adds that when it is suggested to the railroads that "they own the motor trucks and that they undertake to give a complete service, everyone of them shies."

While Mr. Chandler makes further observations, the foregoing statement is the outstanding point in his comment. Here it will be seen a responsible industrial traffic executive issues a challenge of a type which railways can ill afford to ignore. But the answer should not be difficult, for the situation would seem to require nothing more than the application of sound merchandising principles. In other lines of business, concerted and continuous attempts to meet the desires of customers are the foundations of successful enterprises. The ease with which motor trucks are able to divert traffic from railways indicates that a great many shippers want a door-to-door service. Why should not railways experiment more extensively along this line?

Missouri Acts to Enforce Weight, Size Limitations

THE state of Missouri, like most other states, has in effect laws restricting the size and weight of motor vehicles operating over its highways. In Missouri the maximum dimensions permitted are as follows: Length, 30 ft.; width, 96 in.; height 12 ft. 6 in. Four-wheel vehicles are limited to a gross weight of 24,000 lb., and six-wheel vehicles to a gross weight of 38,000 lb. According to recent reports, the Highway Commission, during the last few weeks, has put its foot down hard on violations of these restrictions. Investigation is said to have shown that many of the motor coaches, as well as motor trucks, operating over the highways of the state, have dimensions and weights in excess of the maximum dimensions and weights permitted. The drivers of a number of motor coaches and trucks are understood to have been arrested for operating equipment of illegal size and weight, and one large company is said to have been ordered to replace its present large equipment with smaller vehicles at once.

Signs now apparent point to more difficult days ahead for motor coach and motor truck operators. The sudden clamping down of the law in Missouri is one such sign. Letters and editorials in newspapers, condemning motor coaches and motor trucks for "hogging" the road, are another such sign. The fact that some companies are careful to keep within the law in all respects and compel their

drivers to handle their vehicles properly at all times will probably make little difference. There are enough of the other kind to create an adverse public opinion.

Motor transportation has benefited greatly from favorable public opinion in the past. It will suffer to a similar extent in the future if public opinion should become aroused against it.

Communications

Truck Revenues and Costs

TO THE EDITOR:

KANSAS CITY, MO.

I have just read with great interest the article in the September 27 *Motor Transport Section*, entitled "Truck Competition is Taking the Railways' Carload Traffic." Being an ex-railroader of considerable experience and having made a very extensive survey of, as well as actually operating in, highway motor transportation, I am naturally interested in the various articles of this nature.

In one paragraph, reference is made to the practice of "hauling freight for less than out-of-pocket cost." In this connection, it might be of some interest to you to have a few figures which were taken from a typical case, and one which repeats itself frequently. In the course of making a survey of the Kansas City territory, covering the trade territory as well as local retail districts, special attention was given to the distance and time involved in making shipments by motor truck.

The case in particular covered a motor train composed of a tractor, a semi-trailer and a four wheel trailer, with a rated capacity of 40,000 lb. gross.

This train covered a run of 237 miles one way, or 474 miles round trip, in 32 hours.

Outbound trip:		
Lading composed of	14,000 lb., 1st class.....	\$1.11
	10,000 lb., 2nd class.....	.94
	11,000 lb., 3rd class.....	.78
Gross revenue		\$335.85
Return trip:		
	22,400 lb., 3rd class.....	.78
Gross revenue		\$174.00
Total revenue for the round trip		\$510.55
The actual expenditures for the trip:		
Gasoline (126 gal.)		\$23.94
Oil and grease		3.24
Driver's salary		12.00
Driver's expense		3.50
Total		\$42.68

This train, being one of eleven trains, was allotted an overhead expense of \$2.25 per hour as a fixed charge, the time including both idle and active time, which gives it an overhead charge for the trip of \$72.00. (There may be some question on this charge, but it is a fair one.)

This gave the trip a total charge for overhead and actual operating cost of \$114.68.

Summarizing:	
Total gross revenue	\$510.55
Expense	114.68
Balance	\$395.87

The \$395.87 takes care of profits, and the arbitrary costs of maintenance, depreciation, tires, etc.

No particular care was taken to pick a specific lading or date. It just happened to be noticed, and the figures were obtained more from curiosity than anything else. But it would take considerable figuring to call this load a losing one, and it is by no means an isolated case, as the motor route in question is covered daily by at least one train and frequently by two or three.

I have watched the motor truck expand its radius out of Kansas City from a daily haul of 70 miles in 1926 to 300 miles in 1930, and the loads from 50 tons a day to 1,500 tons a day, and can't help wondering why the railroads won't cut a few strings of red tape, open their eyes and go after this business, instead of complaining to commissions.

With the coming of river transportation for mass hauling,

with the motor truck and airplane carrying the faster freight, and the motor coach carrying both mail and passengers, it looks like a Rip Van Winkle for the railroads.

J. S. H.

What Is "Co-ordination," Anyway?

TO THE EDITOR:

I was very much interested in L. B. Young's article on motor truck competition which appeared in the *Railway Age*, Motor Transport Section, of September 27. But there is nothing particularly new in what Mr. Young says. As a matter of fact, his only remedy is legislation that will protect the railroads against this superior form of transportation. By superior, I mean, with respect to comparatively short hauls, it is superior in service and offers opportunities to the shippers that the railroads decline to provide.

I have seen a great many references to co-ordination of rail and motor transportation. It seems to be a stock phrase with a great many writers on this subject, but I have never yet seen anything by any of them that indicates just what they have in mind. I have heard railroad men say that the motor trucks should haul the freight to the railroad station, the railroad should haul to different destinations, and motor trucks should haul from destination to consignee. Apparently that is the basic idea they have when they talk about co-ordination, but when we suggest to the railroads that *they* own the motor trucks and that *they* undertake to give a complete service every one of them shies.

As I understand it, in the state of California motor trucks are subject to the jurisdiction of the Public Utility Commission. Their rates are subject to regulation. Apparently regulation is not satisfactory, otherwise Mr. Young would not be worrying about it. It is quite apparent that the kind of regulation the railroads want for the motor trucks is that which would require a certificate of public convenience showing that, when existing facilities from station to station furnished by the railroads are adequate to take care of all the business that may be offered, disregarding entirely the pick-up and delivery service from points where the shipments originate to the actual location at destination where the shipments are wanted, no certificate of public convenience shall be given to motor carriers.

I have found in this section of the country where I have made investigations that generally speaking motor truck rates are higher than the railroad station to station rates, but they show a substantial saving to shippers and consignees if trucking to and from the railroad is taken into consideration; that the motor truck for certain kinds of transportation offers a service far superior to that given by the railroad. As a matter of fact, motor truck service is frequently more expeditious than Railway Express Agency service.

The railroads are raising the same cry against this more expeditious and economical method of handling traffic that the steamboat companies raised in the early days of rail transportation, and if the railroads keep on raising their freight rates as they have during the last ten years you will find more and more business going by motor truck.

W. H. CHANDLER,

Manager, Traffic Bureau,
The Merchants' Association of New York.

Pacific Greyhound Lines S



RAPID as has been the development of the motor coach industry on the Pacific Coast, its growth has been a healthy one. Where other industries have met with periods of depression and have received setbacks that often have threatened to throttle their growth and strangle their existence, the motor coach industry has grown steadily stronger with each succeeding year.

As in all great industries, motor coach operation had its origin in small beginnings that belied its present greatness. So reads the story of the beginning and development of Pacific Greyhound Lines. Who is there, re-living the days of jitney runs, who would have dared to predict the extent of present-day motor coach operation?

In the decade following the perfection of automotive highway transportation, little was done to resolve its possibilities for public service to the actual common carrier needs of any community. With the building of better roads came improvement in automotive vehicles. Automobiles soon passed the stage of being the expensive toys of the wealthy and became the commonplace means of transportation of everyone. The public demanded a more flexible means of transportation than was provided by the horse-drawn stage coach, horse cars, or steam and electric trains. This demand was met by the privately-owned automobile. Soon those whose means of livelihood did not permit the ownership of an automobile, and whose transportation needs created a demand for the new mode of transportation, were accommodated by the inauguration of the so-called jitney services. They were enabled, so to speak, to lease space in privately-owned machines at a nominal cost. This enabled them to enjoy all the advantages of automobile transportation without the necessity of investing a large amount of money in a private machine.

Background of Company

Jitney operation soon gave way to organized automotive transportation. This brought with it regular service, uniform tariffs and organized responsibility. Almost overnight, miniature motor coach systems of this

*Routes now cover 9,245 miles of highways
coaches operate 85,000 miles
supplemented by train-*

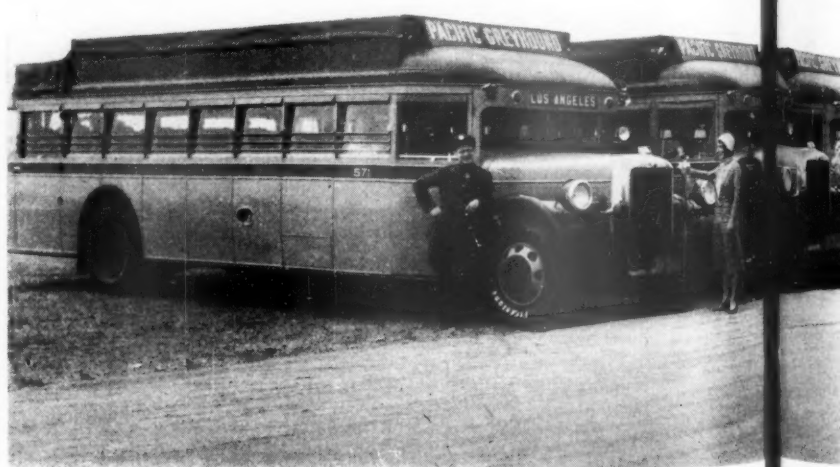
By Mort J.

Manager of Development,

character sprang up throughout the country. Then began the process of consolidation of service. Overlapping services rendered by various motor coach operators were smoothed out either by purchase or merger, thus tending to increase the stability of the new transportation facility. The eventual result was long-distance operation by well organized systems.

That is the story of the old California Transit Company as well as of Pickwick Stages System, two of the large systems that merged to form Pacific Greyhound Lines. The story of Southern Pacific Motor Transport Company, the third of the large foundation stones of Pacific Greyhound Lines structure, is a bit different. This company was organized in April, 1927, to provide transportation service in communities and territories where it was deemed advisable to discontinue rail passenger service as well as to supplement the existing service of the steam trains. The great increase in the use of private automobiles in certain territories reduced rail revenues to a point where train operation was not justified; but because the obligation to supply transportation still existed, the railway company turned to motor coach operation.

Finding that services were being duplicated in various parts of the territory served by all three systems, which through purchase or consolidation had absorbed nu-



Some of the New General Motors Coaches

Show Rapid Development

in seven states—More than 700 motor daily—Long-distance lines replacement schedules

Donoghue

Pacific Greyhound Lines

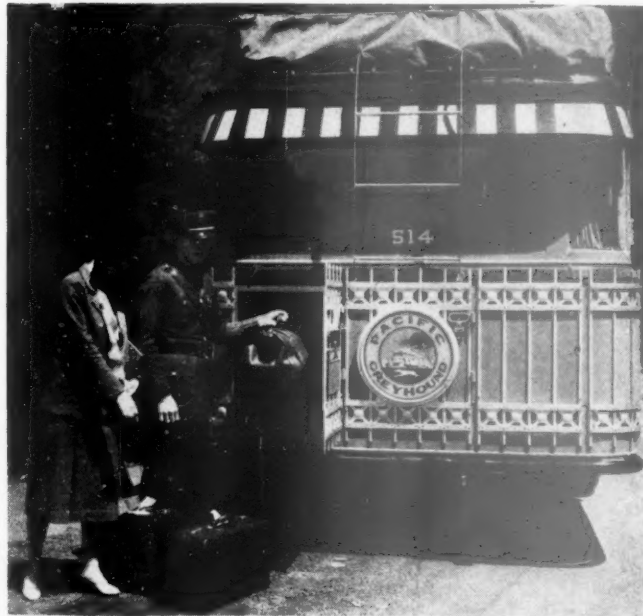
merous smaller motor coach operations, representatives of the three large systems, California Transit Company, Pickwick Stages System and Southern Pacific Motor Transport Company, determined on an amalgamation program, reserving to each company the task of performing services for which it was originally organized.

Late in 1929 Pacific Transportation Securities, Inc., was organized, with each of these three companies holding a one-third interest. It is apparent from the above outline that old-time motor coach system representatives retained a two-thirds control of the new organization.

Early in 1930 the name of Pacific Transportation Securities, Inc. was changed to Pacific Greyhound Corporation, and Pacific Greyhound Lines was adopted as the name of the operating organization.

Officers of Pacific Greyhound

T. B. Wilson, formerly vice-president and manager of the Southern Pacific Motor Transport Company, is president of Pacific Greyhound Lines. Vice-presidents are C. F. Wren, C. E. Wickman, C. R. Harding, also assistant to president of the Southern Pacific, and Earl A. Bagby, who also holds the position of general counsel. M. McKinstry is secretary-treasurer. The board of



directors consists of C. E. Wickman, Earl A. Bagby, William E. Travis, C. F. Wren, Merle H. Lewis, Warren E. Libby, T. B. Wilson, C. R. Harding and Frank W. Webster.

R. W. Lemen is vice-president in charge of operations of the Oregon Stages Division. L. D. Jones is general manager of Pacific Greyhound Lines, A. B. Freyschlag is general superintendent, J. H. Hodge is assistant general manager, H. A. Wooster is general traffic manager, and Mort J. Donoghue is manager of development.

Pacific Greyhound Lines is the largest motor coach operating company on the Pacific Coast. A map of the system shows a network of lines binding together the states of Oregon, California, Nevada, Utah, Arizona, New Mexico and Texas. It forms a complete transportation system for all points in the United States west of El Paso and Salt Lake City. The main artery of the system extends from Portland, Ore., on the north, to El Paso, Tex., passing through San Francisco and Los Angeles, a distance of 2,057 miles.

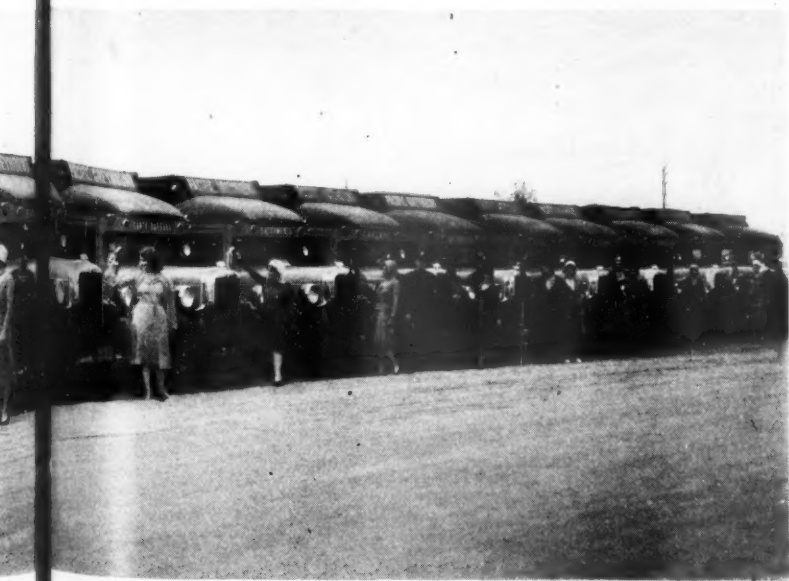
From San Francisco a long line stretches eastward to pass through the Sierra Nevada mountains, and, following the Victory Highway, to cross the state of Nevada into Utah and Salt Lake City, 789 miles from San Francisco.

The Los Angeles-El Paso operation runs east and south to cross the southern part of Arizona and New Mexico and dip down into the westernmost part of Texas at El Paso, a long-distance operation of 1,006 miles. The north and south operation through Oregon and California from Portland to San Diego is 1,183 miles.

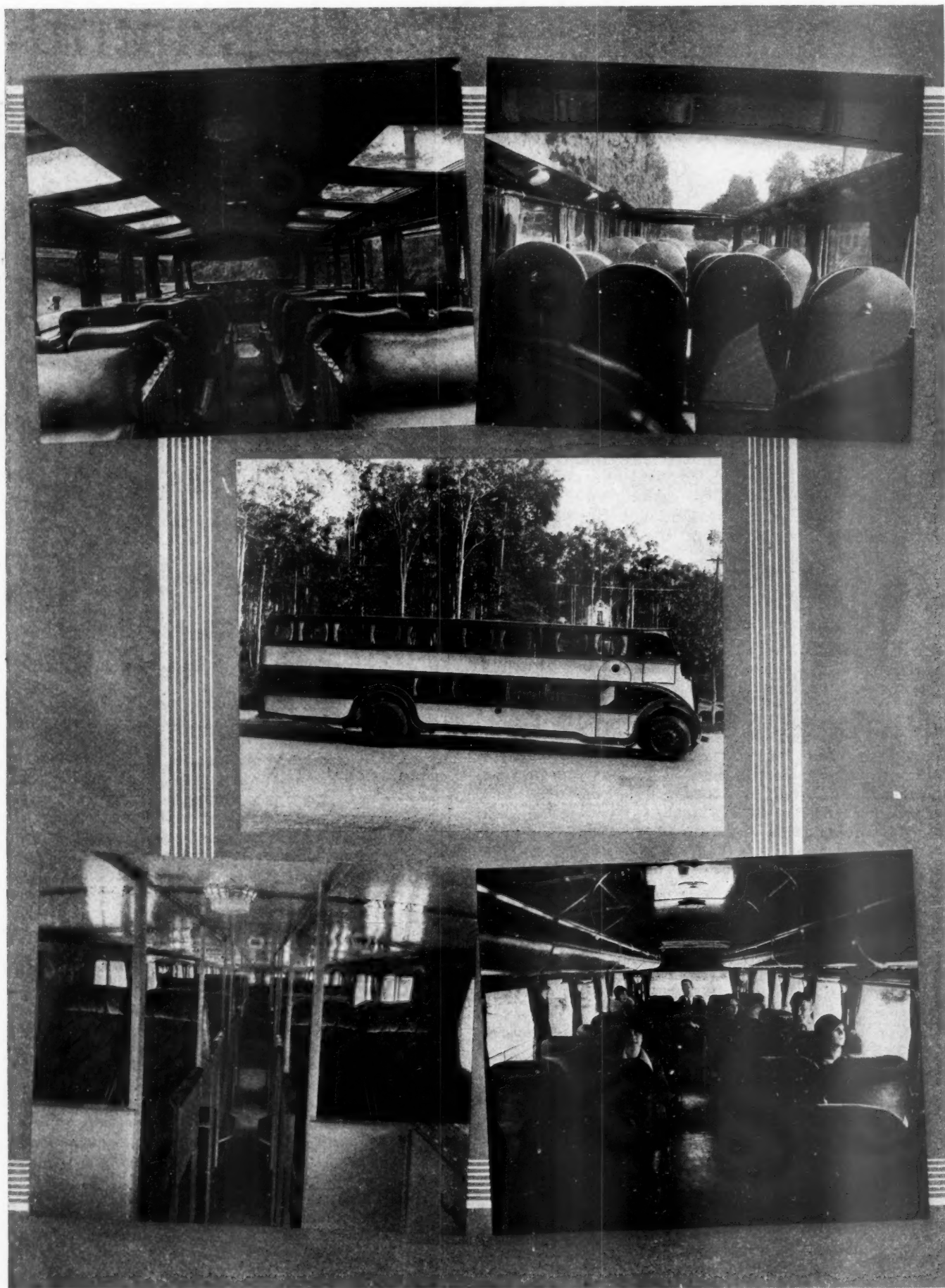
At both Salt Lake City and El Paso, Pacific Greyhound Lines connect with operations of affiliated Greyhound companies, affording direct connections for its patrons to any point in the eastern United States.

Variety of Services

Pacific Greyhound Lines operates through some of the most difficult, while scenically the most beautiful,



Coaches Recently Delivered in Los Angeles



Upper Left: Interior of Glass Top Motor Coach
Upper Right: Interior Sliding Top Coach
Used on Apache Trail

Center: The Pickwick Duplex
Lower Left: Interior View of Duplex
Lower Right: Interior of Typical Pacific Greyhound Coach

country in the world. It operates with all the efficiency, dispatch and precision of the most skillfully managed railroad system. High standards of service have been established. Schedules are frequent and so timed as to meet the peculiar transportation problems and needs of every community served.

At present motor coaches of Pacific Greyhound Lines operate over 9,245 miles of highways. Their daily mileage represents a distance in excess of three times that around the world at the equator, with a couple of trips from Los Angeles to New York thrown in for good measure.

Through schedules are maintained between San Francisco and Portland over both the world-famed Redwood Highway and along the shores of the Pacific Ocean, on the one hand, and the inland route (the Pacific Highway), passing through the agricultural sections of northern California, on the other. Through schedules are also operated over two routes between Los Angeles and San Francisco. One of these routes, the Coast Line, runs for miles along the shores of the Pacific; the other passes through the San Joaquin Valley of central California. Through schedules are also operated between Los Angeles and Portland; between Los Angeles and El Paso; between Los Angeles and San Diego, and between San Francisco and Salt Lake City.

Hundreds of local schedules are operated through the territory served by Pacific Greyhound Lines wherever community needs demand an efficient and frequent service. Perhaps the most notable of local operations centers on the San Francisco peninsula where, during business hours, schedules are operated at fifteen minute intervals.

Thus it may be seen that Pacific Greyhound Lines meets every condition of transportation. It operates over long routes, as between Los Angeles and Portland, where as many as five daily schedules are given, and over shorter runs where transportation needs demand the same number of schedules per hour.

Train Replacement Extensive

In the matter of train replacement service, Pacific Greyhound Lines has taken a leading part in Pacific Coast transportation. As outlined before, the Southern Pacific established a motor coach organization to take over services where rail line passenger operations were discontinued. With the consolidation of this company into Pacific Greyhound Lines, the same policy of train replacement has continued, and has added many more miles of routes to the motor coach system.

A large train replacement service has grown up around Portland, where motor coaches have virtually

supplanted train service in suburban territories. Another instance is in the Monterey peninsula area, where motor coaches of Pacific Greyhound Lines have taken over much of the transportation service formerly rendered by Southern Pacific local trains. In the Vallejo territory, not only has Pacific Greyhound Lines replaced train service with motor coach operation, but it has also eliminated an expensive train ferry operation by routing its motor coaches over the new Carquinez bridge.

By this policy, the Southern Pacific has relieved itself of the necessity of maintaining much costly operation of non-revenue train and ferry services, while still continuing to perform, either directly or indirectly, the transportation service to which it originally dedicated its capital.

In addition to all these operations, Pacific Greyhound Lines maintain seasonal operation in a number of widely separated territories. These routes are operated principally during the summer months and serve recreation centers in the Sierra Nevada mountains and Lake Tahoe area, the Owens valley, the Bret Harte and "mother lode" country, national parks, Camp Mather (the San Francisco municipal summer camp at Hetch Hetchy) and the Yosemite Valley, the Lake County region of Northern California, and scores of other vacation resorts, for which California has become famous.

To maintain these services, a fleet of more than 700 motor coaches is operated on the various parts of the system. Types of equipment vary in accordance with the nature of the service to be rendered. By far the greater number of coaches are of the deluxe parlor car type, having a capacity of 30 passengers. Included in the number are some 80 new coaches built by C. H. Will Motors Corporation and the General Motors Corporation and recently delivered to the Pacific Greyhound Lines in time to be placed in service during the heavy summer travel period. These coaches are of the very latest design, with individual reclining chairs upholstered in mohair, large plate glass observation windows, Tropic-Aire heating and ventilating systems.

Duplex Coaches in Service

Four new Duplex motor coaches from the shops of Pickwick Motor Coach Works, Ltd., at El Segundo, Cal., were delivered early in September. Two of these have been placed in service on the heavy, inter-city, San Francisco-San Jose schedules. The other two are in service on similarly heavy schedules between Los Angeles and San Diego. These coaches have a capacity of 53 passengers. Compartments are so arranged on two decks that in reality the coaches have a height of not more than a deck and a half, avoiding the cumber-



Scene Along a Pacific Greyhound Route—One of the Dutch Windmills of Golden Gate Park in Background

someness of a full two-deck coach. Access to the seats is gained by a step up or down from a central aisle.

Glass-top coaches are used on portions of the Redwood Highway where the road winds through forests of towering redwood trees. These coaches enable travelers to enjoy the marvelous scenery without craning from coach windows. Coaches fitted with telescoping tops are used on the Apache Trail in Arizona. Roofs of these coaches are constructed so that they can be slid back in sections, leaving the top of the car entirely clear for unobstructed view of the mountains.

Special Equipment for Special Jobs

Twin coaches are used in street transportations operations in Oregon cities, in addition to a number of coaches of the street car type. A special type of coach is used between San Francisco and San Jose in addition to the Duplex coaches for interurban operations. These

city, and coaches and passengers are driven on to ferryboats for transportation either to Oakland or Sausalito. From Oakland, coaches continue on to Sacramento and Portland, by way of the Pacific Highway, or to Sacramento, Reno and Salt Lake City. From Sausalito, coaches continue on up the Redwood Highway to Eureka and Portland.

All-Expense Tours

One of the features of affiliated Pacific Greyhound Lines operation is the California Parlor Car Tours, between Los Angeles and San Francisco. This tour is operated under the all-expense and personally-conducted plan and represents the most deluxe form of highway transportation. Three schedules a week each way are operated. Transportation is in spacious motor coaches with individual chairs. Overnight stops and stops for meals are made at exclusive hotels and cafes. The time



Bridge Across Carguinez Straits of San Francisco Bay—Motor Coach Operators Here Avoid a Costly Rail Ferry Operation

cars are so constructed as to facilitate the loading and unloading of short haul passengers, and are equipped with cash fare boxes.

Pacific Greyhound Lines has also developed a unique type of equipment for operation in territories where the passenger haul is light, but where considerable space is required for handling express packages and mail pouches. In equipment of this type, a van body is constructed on the chassis immediately back of a passenger compartment, in such manner as not to sacrifice seating comfort. Such combination equipment is of particular value in comparatively sparsely settled sections where passenger demands on each schedule are light but where a considerable volume of express and mail hauling is done for the Railway Express Agency and the Post Office Department. Passengers are afforded the utmost in comfort as they are in any other type of Pacific Greyhound Lines equipment.

A peculiarity of motor coach operation out of San Francisco that must not be overlooked is the fact that all coaches leaving or entering San Francisco for or from eastern and northern points must be ferried across San Francisco bay. These coaches are loaded at the Fifth and Mission streets terminal, in the heart of the

required for the trip is three days, and the tour takes the traveler through some of the most historic as well as most beautiful of California country. The traveler, journeying leisurely by California Parlor Car Tours, is enabled to visit most of the historic Missions of early California, as well as world-famed Santa Barbara and Del Monte. A grove of big redwood trees is also one of the features of the tour.

85,000 Daily Motor Coach Miles

Pacific Greyhound Lines maintains an efficient schedule department. Through field men and daily reports, this department keeps constantly in touch with traffic movements. Additional demands for transportation are studied and analyzed, and schedule adjustments are made to keep all equipment moving with the flow of the heaviest traffic.

Pacific Greyhound Lines has an average of some 950 daily schedules or trips, over 9,245 route-miles, for an aggregate of approximately 85,000 daily motor coach miles.

Safety is the most essential operating requirement of Pacific Greyhound Lines, and nothing is counted

(Continued on page 892)

Modernizing the Maintenance of Motor Coaches*

How Mitten Management saves money and improves service by use of today's knowledge and equipment—Motor coach mileage contracts suggested

By H. B. Hewitt

Assistant Vice President, Mitten Management, Inc.

THERE are so many variable factors involved in determining how money apportioned for maintenance can be spent most economically, that this can rightfully be considered an engineering problem. In the past it has been customary to set up plans for the maintenance of automotive equipment without an engineering study, but upon a definite mileage basis, such as changing the oil in the crankcase every 1,000 miles, changing spark plugs every 10,000 miles, etc. This procedure was undoubtedly found to be effective at the time when workmen were inexperienced and skilled repairmen were difficult to obtain.

it would seem that the proper method for determining the time to make repairs, adjustments or replacements, should be based on existing conditions and facts, rather than upon a measure of time or distance. Under this method, men developed to be diagnosticians, rather than inspectors would determine the amount of repairs and the time when repairs are to be made.

Repairs When Necessary

Men with sufficient experience and good judgment, who can determine accurately the proper time to make an adjustment, to change the oil or replace a part, are



High-Pressure Tires on this Coach Were Replaced with Balloons

This basis of making repairs was probably quite satisfactory to supplies manufacturers and dealers in lubricants.

With the development of measuring devices providing accurate means of obtaining facts pertaining to the condition of the various parts of the motor vehicle,

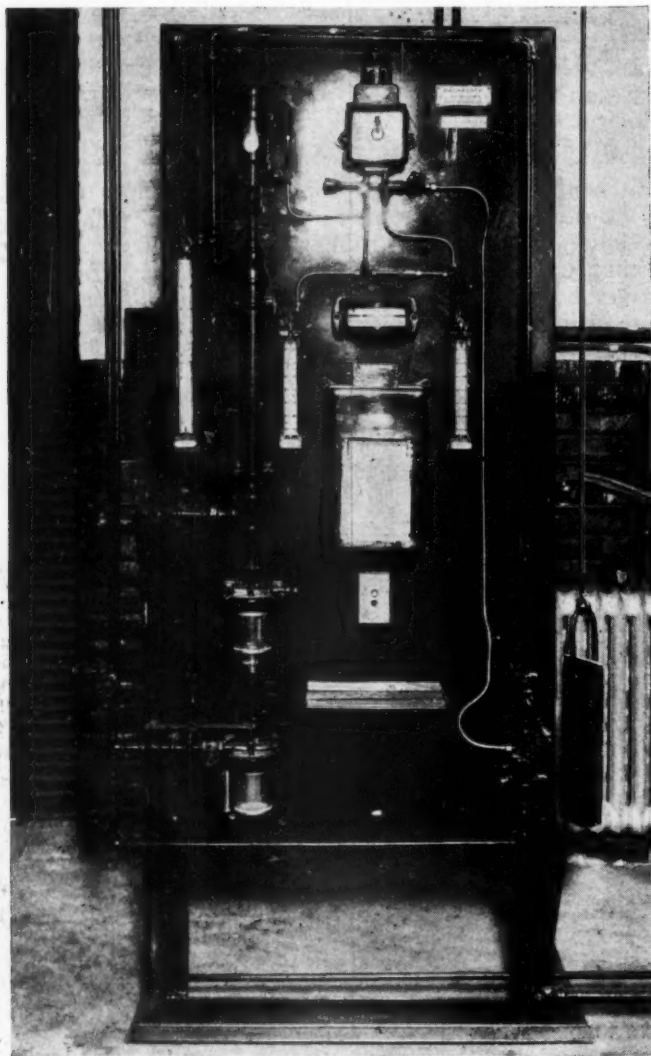
of inestimable value to any motor coach operation. It is my opinion that hundreds of thousands of dollars have been needlessly spent for maintenance based strictly upon mileage or time.

The first time the thought occurred to me of the benefits that might be obtained by changing the maintenance method was upon a visit to a taxicab operation where I saw a workman draw a sample of oil from

*From a paper read before the National Association of Motor Bus Operators in Chicago on September 26.

a taxicab crankcase into a glass bottle. He held the bottle up to the light to examine it for color and the presence of sediment. He then rubbed some of the oil between his fingers, after which he approved the cab to continue in service without change of oil.

A few questions brought the information that this operator did not change crankcase oil until an examination indicated that it was very dirty or that it had lost its feeling of oiliness. The first thought on my part was as to how this affected the life of the engine. Fortunately, I made no comment at that time. Soon



Exhaust Gas Analyzing Equipment

afterward, the operator showed me engines which were being fitted with piston rings after running over 90,000 miles without reboring of the cylinders, a most convincing argument that the maintenance methods in this shop are practical. This is probably an extreme case, but in principle will serve to illustrate the method of maintenance I am suggesting.

Motor Coaches Represent Compromises

Motor coach manufacturers, on account of relatively small production and their desire to reduce the cost of manufacturing in order to meet competition, are producing vehicles which at best contain many compromises. Unfortunately, motor coach operations have not all attained efficient handling and servicing of equipment; therefore, as the manufacturers suffer through failures, they are forced to adopt protective

measures by adding weight and strength to their vehicles so that they will stand abuse and poor maintenance.

During the last three years, motor coaches of the same outside dimensions and seating capacity have increased in weight approximately 33 1/3 per cent, but have decreased in cost per pound approximately 33 1/3 per cent. The engine power has been increased approximately 300 per cent, and various other changes have been made which have considerably improved the performance of the new vehicles. In spite of the many changes in design, increased weight and improved performance, the coaches available today still fall short of equaling automobile performance with respect to acceleration, speed, comfort and maneuverability. When operators can obtain buses that give the public the performance they desire most, speed and comfort, they will be on more nearly equal terms with their greatest competitor, the privately owned automobile.

Unless a coach is especially designed for the particular service in which it is to be used, there will be numerous modifications which can advantageously be made to improve performance and effect economies. Maintenance engineers can, by analyzing their equipment and accumulating accurate statistics of operations and costs, accomplish results that will greatly improve the economy and reliability of motor coach operation.

The following comments pertain to methods of maintenance which have been developed for operations under Mitten Management:

Oil Reclamation

Fleet operators, in their constant search for possible savings in operating costs, are looking favorably upon the reclamation of crankcase drainings. This is a very fertile field for saving, and after three years' experience in using reclaimed oil, I do not hesitate to recommend the installation of oil reclaiming equipment to operators of motor vehicles. In Philadelphia, there is a central oil reclaiming plant which has a capacity of 200 gallons of cylinder oil per day, and in addition wiping rags are washed and woolen waste from subway and surface car journals is reclaimed. The costs for 1929 were as follows:

Cylinder oil—motor coaches and taxicabs ..	11 cents per gal.
Wiping rags	4 cents per lb.
Woolen waste for car journals	3 cents per lb.

Transportation charges between the central reclaiming plant and the garage and storerooms are included in the above costs, so that comparison can be made directly with new material delivered to the same points.

This plant in 1929 had the following production:

Cylinder oil	30,000 gal.
Fuel oil	10,000 gal.
Waste	100,000 lb.
Wiping rags	27,000 lb.

Carburetion

Carburetor settings or adjustments which are adopted as standard by manufacturers are developed for universal service, as the coaches are sold for operation all over the country, and there is a considerable variation in operating conditions such as speeds, loads and grades. Such a carburetor setting is one of the compromises mentioned above. Daily fuel expenses, when figured cumulatively for millions of miles of operation, show possibilities of savings which are astounding to operators who have not been accustomed to handling such figures. In one of our operations, the annual mileage is 9,336,654. An increase of one-tenth of a mile in the average per gallon effects a saving of \$14,614 per year. A great deal can be accomplished by replacing the guess method of setting carburetors

by scientific methods, through the use of instruments for accurate measurements. In some of the smaller operations where money is not available for the more expensive instruments, a very simple device for attachment to the coach for road testing can be used. In larger operations, more accurate methods of measuring carburetion by exhaust gas analysis are desirable.

After analyzing the route or service in which a particular coach or group of coaches is to be used, it is advisable to adopt a carburetor setting which will give the best operating economy. This is not always the best fuel economy, as under some conditions increased power at a sacrifice of fuel economy will produce an operating economy which will more than offset the increased cost of fuel.

The P. R. T. automotive laboratory is equipped with exhaust gas analyzing equipment as shown in an accompanying illustration. The horizontal meter in the center indicates percentage of incomplete combustion, from a measurement of carbon monoxide plus hydrogen, which is converted upon a chart to percentage of carbon monoxide. The recording instrument in the lower center is used for long tests or where a graphic record is desirable. The mercury manometer on the left of the panel indicates back pressure in the exhaust pipe of the engine under test.

Tires

Many motor coach operators can make considerable savings by carefully analyzing their tire costs and average tire mileage, having in mind the following important factors:

Underinflation reduces tire life and reduces gasoline mileage. On one type of coach, a drop of 10 lb. in air pressure in 38 in. by 7 in. tires at 30 m.p.h. increases the power loss 3 hp.

Incorrect wheel alignment shears away the tire tread and reduces gasoline mileage. On a good brick road, a change of toe-in from 0 to $\frac{1}{4}$ in. will create a loss of 1.125 hp. and $\frac{1}{2}$ in. toe-in results in $4\frac{1}{2}$ hp. loss.

A 1 in. drop at a vehicle speed of 16 m.p.h. nearly doubles the static load on the wheel alone. A check on one of Philadelphia's streets by actual count of 100 drivers, showed only 26 tried to avoid a hole in the pavement.

A study of the tire failures on long distance, high speed motor coaches resulted in figures showing a very high percentage of failures upon the inside tires of the rear dual wheels. A survey of the routes over which these coaches traveled found a considerable crown on the road surfaces. It was, therefore, reasonable to believe that the inside tires were overloaded. As a further check upon this condition, temperatures of the tires were taken and the air pressures were checked. The following table shows the results of this investigation.

Tire Air Pressure

	Garage	32 Miles	45 Miles	100 Miles
Left Front	70	85	90	90
Right Front	70	90	95	95
Left Right Inside	65	85	85	90
Left Right Outside	70	80	85	90
Right Rear Inside	70	100	105	100
Right Rear Outside	70	90	85	95

It will be noted that the right rear inside tire shows a 50 per cent increase in air pressure at the end of 45 miles.

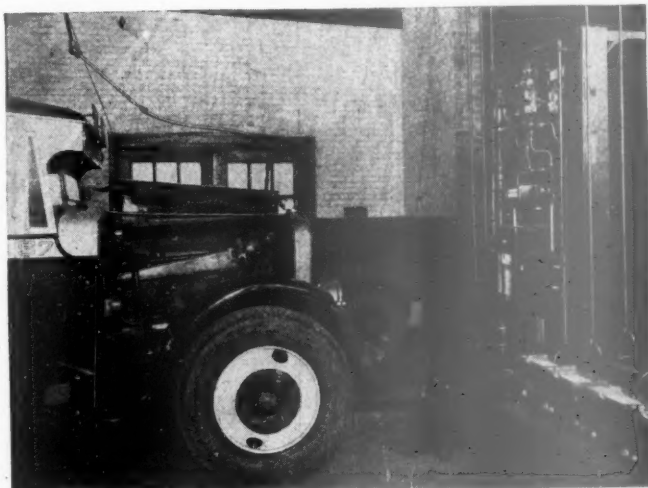
As a result of this investigation, the cold tire air pressures were reduced, and the inside tires are inflated 10 lb. less than the outside tires. These changes resulted in an immediate reduction of tire failures and greater average tire mileage.

Some operators do not seem interested in tires that are bought on mileage contracts, but they should realize that manufacturers base their mileage rates upon operating conditions and experience and reduce rates upon good experience, similar to the practice of insurance

companies who reduce their premiums according to past experience.

On one of our operations, over a period of three years, the payments for damaged tires were reduced 78 per cent, and the mileage rate 35 per cent, largely through improvement in operating conditions and the experience gained by the tire manufacturers holding the contract.

A group of 150 coaches was equipped by the manufacturer with thermostats in the engine cooling system and a four-blade radiator fan. Upon investigation it



Testing the Exhaust Gas of a Motor Coach to Check the Carburetor Setting



Splines of Axle Shaft Twisted Through Torsional Strains

was found that the power required to drive the fan was 11.5 hp. at 2,000 r.p.m. The thermostats were removed and two blades of the fan were cut off, resulting in only 5.5 hp. being required to drive the fan at 2,000 r.p.m. Satisfactory cooling was obtained and an additional 6 hp. previously used to drive the fan was available to propel the coach. The design of the original fan was obviously a compromise made necessary by the wide variation in atmospheric temperatures encountered in country-wide distribution.

The foregoing comments will serve as illustrations

of some of the methods for obtaining economies by fitting equipment to specific operating conditions. Competition in motor coach transportation makes it necessary for officers to scrutinize their operating costs in order to effect even the smallest economies that will collectively make it possible to earn a profit. It is not unusual to see motor coach operating costs analyzed to the fourth decimal. The motor coach operations under Mitten Management total annually over 17,000,000 miles. With this mileage, one in the fourth decimal represents \$1,700 per year. Tire costs are figured to the fifth decimal.

Removal of Wheels

It is the practice of many shops to remove wheels and hubs so that an inspection of the brake rigging, bearings, etc., can be made. This practice seems to be unnecessary and adds to the accident hazard, as each time wheels are removed from tapered axle shafts there is wear upon the shafts and probable stretching of the hubs. When working from racks or pits underneath the vehicle, inspections can be made of the condition of the brake lining and brake rigging, and the condition of the bearings can be determined by experienced men through testing for looseness and roughness when the wheel is turned by hand. A saving in labor can be effected by intelligent inspection.

Twisted Axle Shaft

An accompanying illustration shows the splines on an axle shaft which were twisted through torsional strains. The first impulse of a repair man is to replace this part with a new shaft. In a Philadelphia operation, this was done for several years, but it was decided finally to determine just how long an axle would run in the condition as shown. Much to everyone's surprise, there were found to be thousands of miles of useful life in these shafts, and it then became standard practice to continue the shafts in operation until there are signs of a fracture. It is usually a sudden shock caused by the application of the emergency electric brake which causes such a twist. In this dual drive, three-quarter-floating axle, the shaft acts as a fuse which saves other parts of the vehicle. The spline end of the shaft being on the inside of the axle housing, a broken shaft is not an accident hazard.

Repairs to Broken Chassis Frames

In one of the Philadelphia operations, we had an epidemic of broken chassis frames. The customary procedure in such cases was to remove the body from the chassis in order to make repairs. Due to the necessity of keeping the vehicles in service, it was found possible to jack up both sides of the broken frame so that they were in correct alignment, and to fit a 5/16-in. plate to the channel and a similar plate on the outside. By electric welding the two plates to the frame across the fracture, a satisfactory repair job is made without disturbing the body and at considerably less cost. Some of these repairs have been in service for more than a year with no indication of failure.

As improvements are made in various component parts of commercial vehicles, it is sometimes economical to do constructive maintenance by applying the improved parts to existing equipment.

Adapting Balloon Tires to Old Equipment

The development of the balloon tire for heavy duty service and the satisfactory application of this type of tire to the motor coaches now being manufactured has brought about competition which is not favorable to the existing bus equipment. It was, therefore, con-

sidered advisable to equip some of the older vehicles with balloon tires in order to provide vehicles with easier riding qualities and also to reduce maintenance costs. Single-deck coaches which were originally equipped with 38 in. by 7 in. high pressure tires are now equipped with 9.00 in. by 24 in. balloon tires. The difference in dimensions of these tires was not sufficient to make necessary major changes in the construction of the coach. The comparative dimensions are as follows:

Tire Size	Cross Section	Height	Pressure
38 in. by 7 in.	8 in.	40.6 in.	90 lb.
9.00 in. by 24 in.	9 in.	42.2 in.	55 lb.

The changes necessary to apply these tires are:

1. Increase the set of the rear springs to raise the body 1½ in.
2. Install spacers underneath the rubber bumpers mounted on the frame over the rear axle, so that the rubber bumper will strike the axle housing before the tires rub the top of the wheel arches.
3. Install a 1 in. spacer between the dual rear wheels.

It has been our experience that balloon tires, as compared to the high pressure tires running in the same service over the same routes, will average 75 per cent higher tire mileage.

I believe that in the last few years a great deal has been accomplished in bringing the designing engineers of motor coach manufacturing companies and the maintenance engineers of the operators closer together, with the result that each has a better understanding of the others' problems; but there are many measuring devices and various kinds of special equipment which have been developed by manufacturers through their research departments and production engineers which would be of great assistance to maintenance engineers if placed at their disposal. I am a staunch advocate of an exchange of engineering knowledge and personnel between the manufacturers and operators for the mutual benefit of both. We have a particular case where such an exchange of engineers was made in one of our operations, which has proven most satisfactory from the standpoint of both manufacturer and operator.

It is generally recognized that one of the greatest factors in the development of high pressure pneumatic tires and balloon tires is the tire mileage contract, under which the tire manufacturer assumes all maintenance expense. I offer as a suggestion, to stimulate the development of the motor coach and to very materially reduce maintenance costs, motor coach mileage contracts with motor coach manufacturers.

* * *



Sheep Truck in Highway Freight Service of the London & North Eastern of Great Britain



One of the Coaches Which Was in Service on the Tracy City Branch

N. C. & St. L. Discontinues Motor Coach Service

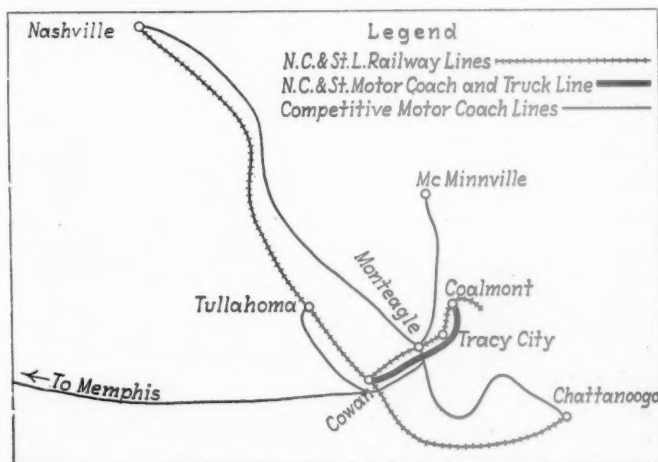
Withdraws motor vehicles which replaced passenger train service on Tracy City branch in 1926—Passenger traffic dwindles as competition increases

AS a result of steadily decreasing passenger traffic over the line, the Nashville, Chattanooga & St. Louis has discontinued the motor vehicle operations of its subsidiary, the Nashville, Chattanooga & St. Louis Motor Transit Company, parallel to its Tracy City branch, and has substituted a mixed train service making one round trip daily between Cowan, Tenn., the junction of the branch line with the main line, and Coalmont. The railroad's application to the Railroad of Public Utilities Commission of Tennessee for authority to discontinue the highway service and supply instead a mixed train service marked the end of a four-year experiment with motor vehicle operation, which, reasonably successful at the outset, proved unsuccessful when increased competition followed the construction of hard roads in the territory.

Subsidiary Organized in 1926

The N. C. & St. L. Motor Transit Company was organized in the spring of 1926, and began operations on July 1 of that year, supplanting entirely the steam passenger train service of the railway between Cowan and Coalmont. The passenger train service in operation prior to July 1, 1926, consisted of four round trips daily between Cowan and Tracy City, a distance of

20 miles, with two round trips extending beyond Tracy City to Coalmont. In its application for authority to replace the train service with motor coach service, the N. C. & St. L. submitted to the railroad commission a statement showing that heavy losses had been sus-



Improved Highways Have Drained Traffic Away from N. C. & St. L. Trains and Motor Coaches

tained for years in maintaining the branch line passenger service. At that time the average receipts from all pay passengers on each of the four trains operated in each direction on the branch line daily were about \$8. The out-of-pocket operating cost of this passenger service, exclusive of general expenses and maintenance of way expenses, was \$42,630 in 1925, the gross passenger revenue being only \$23,922. In other words, the train service in 1926 was being operated at a loss approaching \$2,000 a month.

Characteristics of Locality

The territory served by the Tracy City branch of the N. C. & St. L. is almost entirely on the Cumberland plateau. The line is notable for the heavy grades encountered, Cowan lying at an elevation of 871 ft. and Monteagle, a point midway on the line, at an elevation of 1,922 ft. Beside Cowan, Tracy City and Coalmont, important points on the line are Sewanee, where the University of the South is located, and Monteagle, a large summer colony. Travel to and from this section normally went to or through Nashville or Chattanooga, the nearest cities of considerable size. The one state highway in that section which was in service in 1926 closely paralleled the Tracy City branch of the N. C. & St. L., and there was still at that time a fair movement of passengers in the directions in which the N. C. & St. L. motor coaches operated.

Three 29-passenger city-type motor coaches and two motor trucks with specially designed bodies were placed in service. The motor coaches operated four round trips daily between Cowan and Tracy City, two of these runs extending to Coalmont. On some of these runs, mail, baggage and express was handled in compartments in the motor coaches, but in the main the two motor trucks were used to handle such matter, these following directly behind motor coaches on the motor coach schedules.

New Highways Opened

Since 1926 the situation surrounding the N. C. & St. L. highway operations has been greatly altered due to important changes in highway conditions in the Tracy City section. Tennessee Highway No. 2 was opened from Nashville to Chattanooga, shortening the route between the two points by 23 miles, and crossing the route of the N. C. & St. L. motor coaches at Monteagle. This served to drain away traffic in both directions to Nashville and Chattanooga by a route shorter than that of the railroad or the railroad operated motor coach line.

Tennessee Highway No. 15, from Cowan to Monteagle, became part of the through route between Memphis, Tenn., and Chattanooga. Tennessee route No. 56 from Coalmont to Monteagle became part of a through route from an important Middle Tennessee territory. Over all three of these routes, independently operated motor coach lines with certificates from the regulatory commission of Tennessee were started, and there were two such lines competing with the railway and its motor coaches over the highway between Monteagle and Cowan.

More important than the competitive motor coach lines in taking traffic from the railway, according to officers of the N. C. & St. L., have been the private automobiles in the territory, which have been used more and more as highway conditions have been improved. With excellent paved highways in all directions, and without the road congestion found about

larger centers, it has been most natural for the use of private transportation to increase greatly.

Traffic Declines Sharply

The net effect of these changes in conditions during the past four years may be noted by a comparison of the first six months of operations of the N. C. & St. L. motor coach lines, July-December, 1926, with the first six months of this year, January-June, 1930. In the six months from July to December, 1926, the motor transit company carried 26,188 passengers, and had operating revenues \$11,300.16, which failed by \$2,796.67 to pay operating expenses. During the six months from January to June, 1930, the motor transit company carried only 5,432 revenue passengers, with operating revenues of \$3,663.74. The actual loss from operations was \$7,511.25.

At the present time, the N. C. & St. L. is operating only mixed train service over the Tracy City branch. The introduction of motor coach service four years ago probably served to postpone a reduction of the passenger service to one round trip daily of a mixed train, a course which in all probability would have been forced upon the railroad before now if the attempt to serve the Tracy City section with steam trains had continued.

Pacific Greyhound Lines

Show Rapid Development

(Continued from page 886)

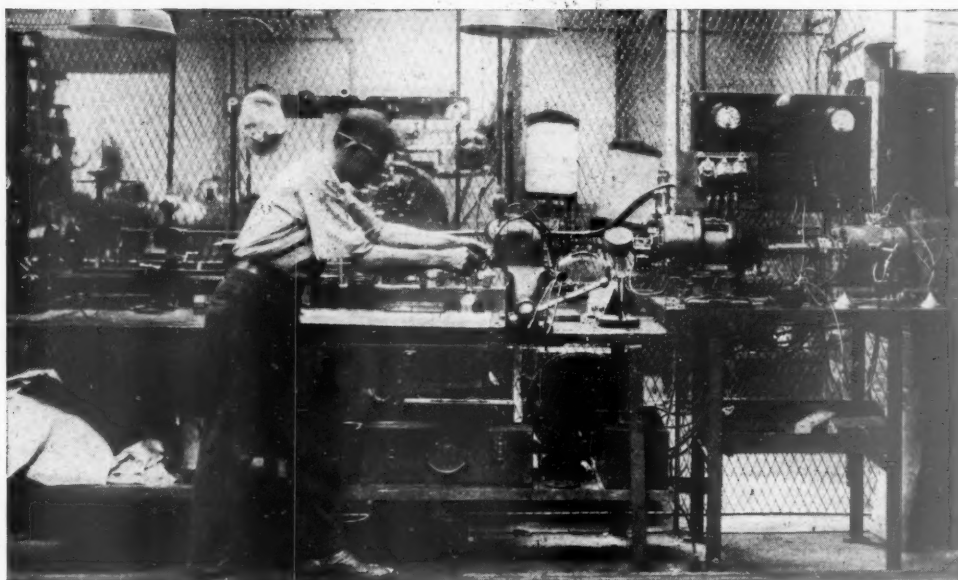
nanced that will in any way interfere with safe operation. A well-staffed and efficient department is maintained in the organization, which devotes its entire time to a study of this branch of operation. Drivers are thoroughly schooled in safety precautions, and under no circumstance must they sacrifice safety in favor of on-time operation of schedules.

Pacific Greyhound Lines takes pride in an efficient and scientific system of equipment maintenance. Fully equipped shops are maintained in Oakland, Portland and Los Angeles, where complete facilities are provided for motor rebuilding, assembly of all parts, and even body construction, if occasion demands. Garage facilities for heavy and running repairs are provided at a score of other shops maintained at strategic points throughout the system.

Modern Terminal Facilities

Terminal facilities in every community served by Pacific Greyhound Lines are second to none in the country. Every endeavor is made to provide the utmost in comfort and convenience for passengers and patrons. Handsome structures, centrally located in major communities, house the business offices of the company and provide luxurious accommodations for patrons. Well-lighted and ventilated waiting rooms, commodious loading platforms, courteous attendants, all are provided for the convenience of the traveling public.

Careful consideration is given to the selection of terminal locations in smaller communities, and wherever possible these terminals are so arranged that coaches may be driven off the street to load or discharge passengers under shelter. This policy has received high commendation from public officials and motor coach patrons alike, as it tends to relieve street traffic congestion in the vicinity of terminals.



A Corner of the Electrical Shop

Keeping the

Electrical Equipment

In Condition

Surface Transportation Company finds that better results are obtained by maintaining its own general repair shop

RPAIRING of electrical units is a problem of maintenance which is subject to several methods of solution, depending upon the size of the fleet and the proximity of repair and parts shops. It is seldom possible to obtain a general mechanic who can also overhaul electrical equipment, and it would, therefore, seem to be advisable to have this work done by a good specialty shop, possibly on a flat rate basis, unless there is enough work to keep at least one full time electrical mechanic busy all of the time.

However, the work of even the larger operations is frequently solicited by the local electrical repair shops, usually with attractive offers of low rates and guaranteed workmanship. Before giving work to these specialists, it would be well to see that they use only new replacement parts, rather than the remains of discarded units of a similar model, and that they have mechanics who are familiar with the make of equipment given them for repair.

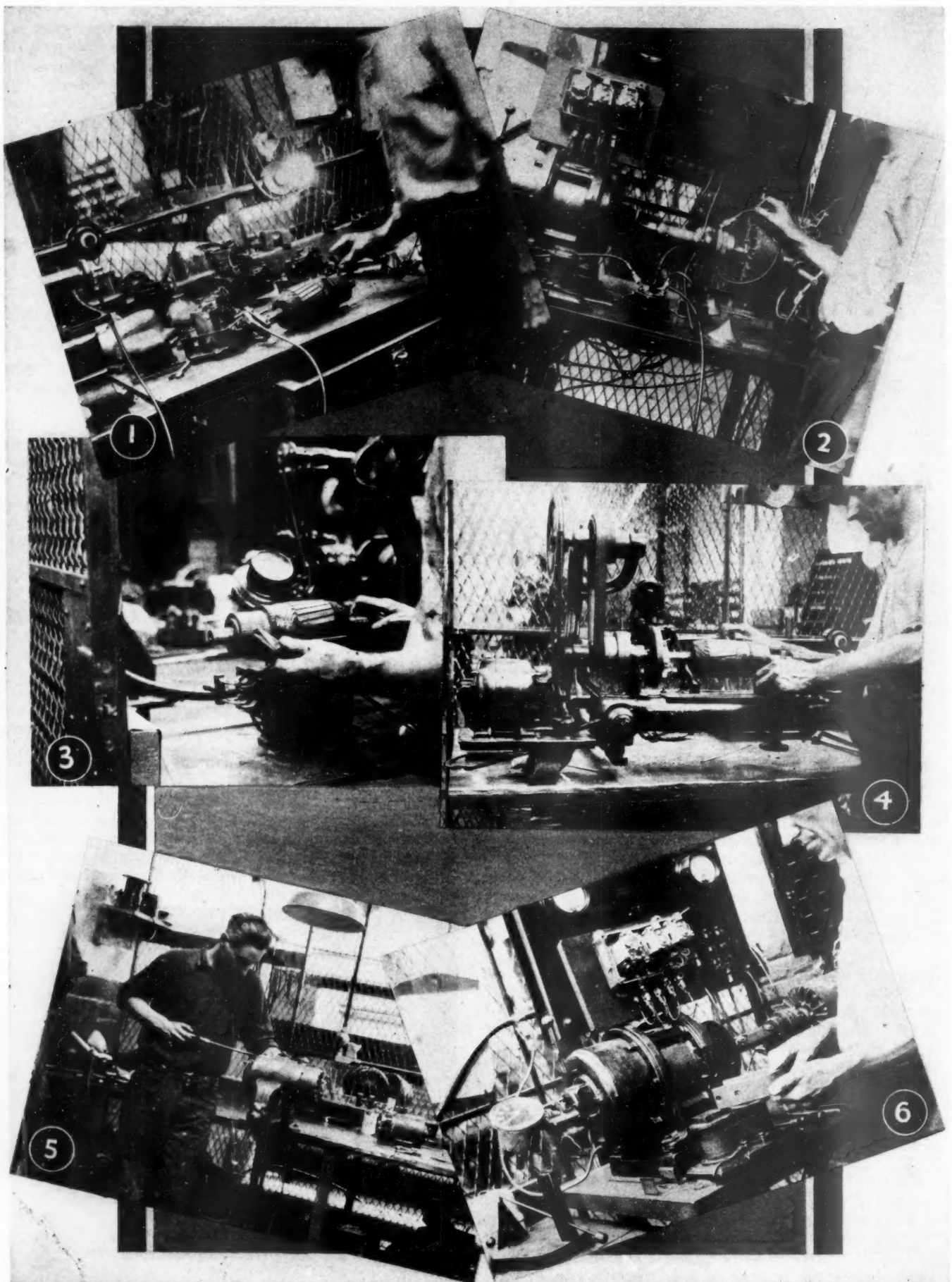
The Surface Transportation Company, operating motor coaches in New York and Westchester County, N. Y., has found that only by operating its own shop can it make sure of the use of genuine repair parts and secure a degree of workmanship which will allow the electrical units to give reasonably trouble-free service. If short service is obtained due to poor workmanship the trouble can be quickly traced and eliminated.

One important feature of this operation is that all electrical equipment is standardized as to manufacture, this being included in the specifications of all purchases

of new equipment. The advantage of this is that the mechanics become thoroughly familiar with the construction and operating characteristics of the one make of equipment and, consequently, do a better and quicker repair job than otherwise. By having only one make of equipment, it is also possible to greatly reduce the stock of spare parts which must be kept on hand; and,



Lead Burning in the Battery Room



1. Testing a Commutator for Grounds 2. The Width of the Spark Thrown by an Induction Coil Is a Measure of Its Efficiency 3. Testing an Armature on the Growler 4. Undercutting the Mica on a Commutator 5. Generators are Dismantled Every 20,000 Miles 6. A Remagnetizing Machine Is Mounted on the Test Bench

as these parts are bought in relatively large quantities, a better trade discount is obtained from the manufacturer. No repairs are made in the operating garages, it being a rule that if a unit does not operate properly it must be removed and sent to the repair shop.

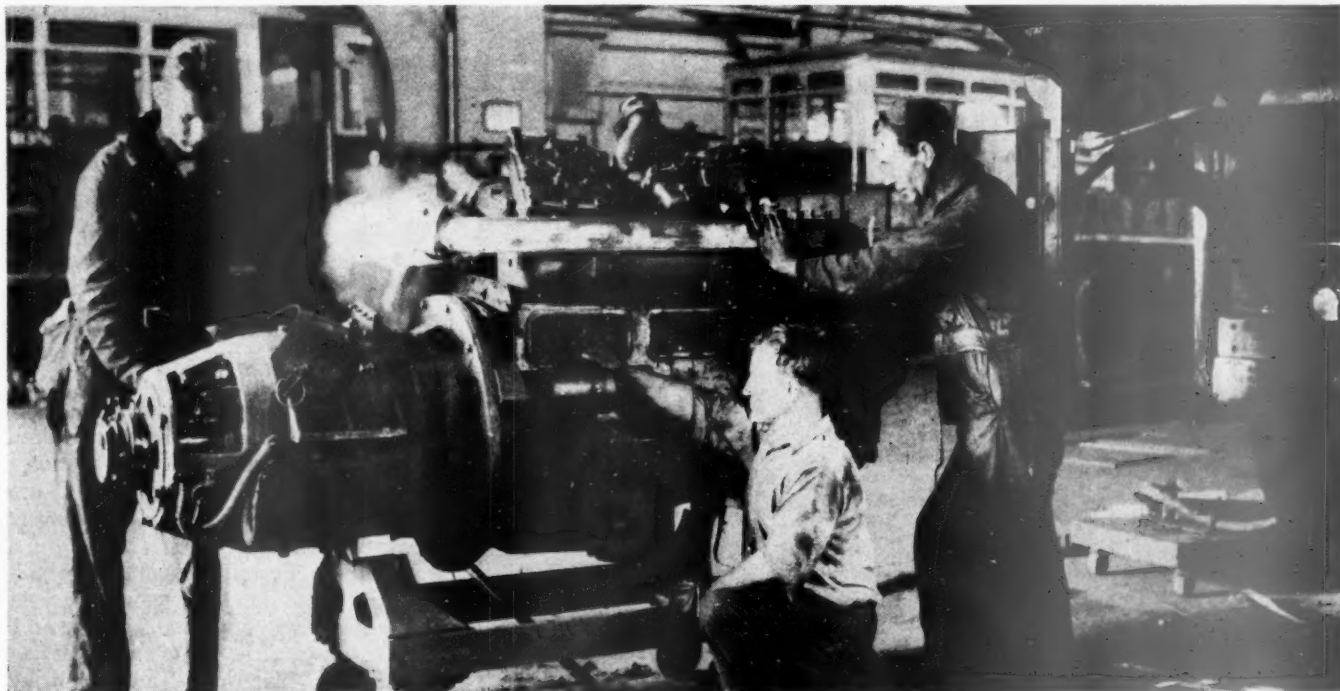
The electrical repair department of the Surface Transportation Company consists of an electrical repair shop and a battery room, each of which are about 20 ft. by 20 ft. in size. The tool equipment for making repairs to electrical units consists of the following: A 7 in., 18 in. center-to-center, individual motor drive, lathe, which is used for turning commutators, checking shafts for alignment, turning bushings, etc., and which is also equipped with an attachment for undercutting the mica after a commutator has been turned down; a puller press for removing and replacing bearings, gears, couplings, end caps and Bendix drives; a growler, used in testing starter and generator armatures for grounded or open coils and defective commutators; a Weidenhoff test bench on which generators can be tested for current and voltage output at speeds from zero up to 3600

removed and sent to the shop for inspection. The wiring, with the exception of the battery leads, remains in the coach, and is carefully tested for grounds and other defects. When making this test, an electrician connects a fully charged battery to each wire and makes a connection through a test lamp to ground.

Each piece of equipment is thoroughly tested and repairs are made if found necessary. This consists of running the starter, generator and distributor on the test bench and noting the output. The distributor is run at different speeds, the quality of the spark serving as a gage of its efficiency.

Voltage and current regulators are cleaned and reset, coils are tested for the presence of green-moulding and starting switches are taken apart and cleaned. Batteries are placed on charge and the condition determined by gravity and voltage readings. Unless major repairs are found necessary, the battery is equalized, repainted and replaced in the coach.

When a generator or starter comes to the shop for the first time, a number is stamped on it and a record



Checking Over a Gas-Electric Power Unit

r.p.m., starting motors for torque output, magnetos and distributors for action and quality of the spark, and coils and condensers for proper operation under service conditions. Current and voltage regulators can also be set to open at predetermined maximum and minimum loads with the test bench equipment.

The repair shop has work benches along two sides, equipped with vises and drawers, a large parts bin, and a rack for incoming and outgoing equipment. The battery room has a charging bench, acetylene and oxygen torch, group holding fixture for lead burning, dies for making new posts and gaskets from lead scrap, stone jars for storing acid, and work benches coated with pitch paint for protection against spilled acid. The shop personnel consists of a foreman, three electricians, one ignition man, and one battery repairman.

The maintenance policy of the company requires that every motor coach be sent to the shop at 20,000 miles for inspection and repair. At this time the electrical apparatus such as the starter, the generator, the ignition units, regulators, starting switches, batteries, etc., are

kept thereafter of the date and extent of repairs made to it. The foreman looks up the past record of each unit when it comes into the shop, and if repairs have been frequent, a thorough investigation is made to determine the cause. If defective design is found to be the cause of frequent replacement, considerable time and effort will be spent by the foreman and superintendent to locate the difficulty. It has frequently been found that alterations can be made which will greatly extend the service period of a mechanical or electrical unit.

There are two service garages, having 133 and 56 motor coaches respectively, and a stock of spare generators, starters, distributors and other accessories for each make of coach is kept on hand for exchange by the garage force. Experience has indicated that a stock of spare units equal to 10 per cent of the number of vehicles operating out of that garage, should be available at all times.

The shop makes all repairs to electrical units except the rewinding of armatures of starters and generators. This is done by the manufacturer on an exchange basis.

Reading Opens Modern Terminal at Philadelphia



Waiting Room—Passage to Reading Terminal
Right, in Background—News Stand

THE Reading Transportation Company on October 1 opened a modern motor coach station in the parent company's Reading Terminal at Philadelphia. Space was secured for the motor coach station by the release of unneeded space by the railroad baggage department.

Reading Terminal is a large railroad station in the very heart of Philadelphia's business district. Trains enter it on an elevated structure and platforms and waiting rooms are located on the second story of the terminal. On the street level floor is a large lobby with ticket selling facilities, telephone and telegraph booths and the baggage and parcel rooms. Just behind these a street is carried through the terminal beneath the railroad tracks and it is this street which the Transportation Company's motor coaches use, affording a covered parking area where passengers are able to board the coaches directly from the new sta-

At Left, Upper—The Waiting Room As It Appears on Entering from Reading Terminal Lobby—Refreshment Stand in Background—At Right, Doors Leading to Corridor from Which Coaches Are Entered

Middle—Ticket Windows

Lower—Corridor from Which Gates Lead Directly to Coaches



Passage to Reading Terminal Lobby at Extreme Left—At
News Stand, Ladies' Room and Corridor to Twelfth Street

tion. Space for four coaches at a time is provided, each with a separate door leading from the station, near which destination signs, time of departure, etc., are shown in much the same manner as at entrance gates to railroad station platforms.

A Self-Contained Unit

Although the motor coach station is located in the railroad terminal, it is nevertheless a compact self-contained unit, with its own ticket offices, waiting room, toilet facilities, refreshment stand and news stand. Such accommodations are provided, of course, in other parts of the station for railroad passengers but it has been the intention to make the motor coach terminal complete in itself, just as if it were not located in a railroad terminal.

The ticket offices adjoin those of the railroad, but face the motor coach waiting room instead of the main lobby as the railroad ticket windows do. The ticket sellers work in the same enclosure as do those of the railroad. There are two entrances to the station—one from the main ground-floor lobby of Reading Terminal proper, the entrance to the motor coach station being clearly indicated by a large electric sign which cannot fail to attract the attention of anyone entering the main lobby from the street. The other entrance leads into the station through a corridor from Twelfth street. Over the street door of this entrance likewise is a conspicuous, though pleasing, electric sign.

Fixtures employed are modern

throughout, with light colors predominating. Lighting is brilliant and effective, secured from indirect lights suspended from the ceiling, which is rather more lofty than usual in motor coach stations. Ticket windows, benches, toilet facilities, and all other installations are of the highest quality. A bulletin board appears on the wall adjacent to the partitioned-off hallway from which coaches are boarded, which announces all motor coaches ready to receive passengers, their destination, time of departure and the number of the gate at which they are stationed. Still another bulletin board is provided for the display of advertising matter—time tables, announcements of excursions, maps, etc.

Operator's Room

The station has also a room for the operators, where they report for duty, and where comfortable rest and wash-room facilities are provided.

Aside from the construction work in connection with the station proper, it was also necessary to move back two heavy pillars supporting railroad tracks which unduly narrowed the street running through the terminal through which the motor coaches move in entering or leaving the station. Prior to this im-

provement a vehicle parked in the street would have prevented the passage of a motor coach.

Since there are a number of stores with entrances on this street there is considerable parking for loading and unloading. The street is also utilized by taxicabs serving Reading Terminal and space had to be provided for them away from the curb side to allow coaches to draw up for loading and unloading. This was arranged for, however, without involving new construction.

The new terminal is used by all coaches of the Reading Transportation Company entering Philadelphia and also by all coaches of the Colonial-Atlantic-Pacific Stages with which company the Reading's coaches make connections in accordance with a traffic interchange agreement recently entered.



Looking Toward Exit to Motor Coaches, Showing Bulletin Boards

Uniform Operating Rules Proposed

*Committee of National Association of Motor Bus Operators
submits standard form at Chicago meeting*

THE committee on operating practice and costs of the National Association of Motor Bus Operators, at the Chicago convention of the association on September 25, submitted a set of uniform operating rules and regulations governing operating and terminal employees. The association approved the rules.

Members of the committee are A. T. Warner, Public Service Co-ordinated Transport, chairman; H. P. Bruner, Shore Line Motor Coach Company; P. W. Tibbitts, Northland Greyhound Lines, and R. J. Walsh, Interstate Transit Lines.

Those portions of the standard "rule book" relating to working conditions and the handling of equipment are abstracted below.

Working Conditions

Seniority

After having served the customary student period, and having satisfactorily passed the final examination, the names of newly appointed operators will be added to the garage seniority list, and they will serve then as extras at the garage to which they have been assigned. Work is assigned in the order of seniority.

Assignment of Work

Operators will perform such work as may be assigned to them. No man, however, will be required to do extra work after he has already performed a full day's work, nor will any operator be permitted to work more than 16 hours in any consecutive 24 hours, except in cases of extreme necessity or emergency, under which conditions he will be expected to co-operate with the company.

Insubordination

Refusing work, disregarding orders, or incivility to officials or their representatives, is sufficient ground for discharge.

Selection of Runs

A general pick of runs will be held at each garage at least twice a year, or as often as necessary, at which time a choice of routes and runs operated from that garage will be given to each man in the order of his standing on the garage seniority list.

When a new timetable is issued between these general picking periods, a special or "route" pick will be held, at which time a choice of runs will be given the man on the route affected, the runs to be chosen in the order of seniority and held until the next general pick.

Operators who are absent or who neglect to pick their runs at the time appointed for the pick, will be assigned to runs by the superintendent after reasonable effort to reach them has failed. Runs so assigned will conform as nearly as possible to the runs then held.

After each pick, the assignment of runs will be posted.

Assigning Extra Men to Duty

Reporting for Duty

Regular or extra operators assigned to runs will report for duty at least 10 minutes before schedule leaving time. If the relief is to be made at a point away from garage, report will be made at the garage 10 minutes before whatever time will enable the operator to reach the relief point on schedule time.

Extra men not assigned to runs will report at time specified on the reporting list for extras. They will not absent themselves without permission after having made their report for duty.

All reports must be made in person to the official in charge and each man must satisfy himself that his report has been properly recorded.

If unable to report in person, notice must be delivered to the official in charge at least thirty minutes before scheduled

reporting time. No telephone or telegraph messages will be accepted.

Extra men who finish their day's work at 12:00 midnight or after (schedule time) will have the privilege of the optional report on the following day (the morning following such night duty), i.e., they need not make the first report, but will be required to make the second report.

In case of snow storm, both regular and extra men not on duty will be expected to co-operate with the management, by reporting promptly to their garage.

Men returning from sick leave will report before 12:30 p.m. on the day preceding their return to work.

Reporting List for Extras

Report list for extras will be posted at 2:00 p.m. each day for the following day. Names will be placed for work in the following order:

1. New men appointed that day.
2. Men returning from sick leave of five days or more.
3. Men borrowed from other garages on that day.
4. Men who made their report the previous day and either got no work or did not earn over five hours' pay.
5. Men who missed less than one hour and whose original position was not reached for work.
6. Men who, on the previous day, earned over five (5) hours pay and less than eight (8) hours pay, to be listed according to the hours worked.
7. Men having finished serving at the foot of the extra list for discipline, except men placed at the foot of the list for one day for missing.
8. Men who made application for leave of absence and were excused from making their report.
9. Men who were excused at the time they made their report, and men returning from sick leave of less than five (5) days' duration.
10. Men who, on the previous day, earned eight (8) hours pay or over, and men who missed less than one hour and whose original position was not passed for work, to be placed in the same relative position as on the previous day, irrespective of whether or not they obtained work.
11. Regular men commencing to serve on the extra list for discipline. After the first day such men will be placed for work as are other extras, except that they will not be eligible for "hold-downs" during the period of discipline.
12. Extra men serving at the foot of the list for discipline. Such men will not rotate with the list until they shall have completed their period of discipline.

Hold-downs

A run that has been vacant for three (3) days may be assigned as a hold-down to the first extra entitled to one.

Extra men on hold-down assignments will retain their relative positions upon the extra list for the duration of such assignments.

Absence from Work

Failure to Report for Duty

A "miss" is a failure to report for duty within one hour after due to report. The man who misses is required to serve the remainder of that day at the foot of the extra list.

Failure to report is considered a failure to appear for duty and such failures will meet with the prescribed discipline to be applied in such cases.

"Absence without official leave" means the wilful remaining away from duty without permission and will merit discipline at the discretion of the superintendent.

Reliefs away from Garage

Reliefs away from garage will be made only at designated points and promptly on scheduled time. If the relief is not on hand, operator on duty will continue until relieved, reporting the facts to the garage from the nearest telephone. The relief operator so missing will immediately telephone garage for orders.

Leave of Absence

An open book will be kept at the garage for the purpose of recording requests for "days off." The garage clerk will enter the name and date in ink in the presence of the man requesting leave. The privilege of being excused will be granted operators in the order in which their names appear in this book and insofar as the demands of the service will permit.

Men desiring leave of absence will request that their names be placed on the "leave of absence" book not less than one day nor more than five days in advance.

Leave of absence will not be granted for the purpose of permitting men to engage in any other occupation.

Leave of absence will not be granted for a longer period than thirty days. Requests for leave for more than seven days will be submitted in writing to the superintendent for the approval of the general manager.

Operators desiring to be excused for the following day, when no advance notice has been given, will make their request before 12:30 p.m.

After the reporting list for extras has been posted, a regular man will not be excused for the following day, except in case of extreme necessity.

Men who are excused for the day may be called in service if very urgently required. In such cases, they must report regardless of any other considerations. Men so recalled to duty, held at the garage but receiving no work, will be paid for such time at their regular rate.

Regular men who "take chances," i.e., having requested the day off and awaiting an answer as to whether they can be excused, will not be paid for the time they wait for the answer.

Regular operators on leave of absence and recalled to duty will be paid straight time for the actual time worked.

Lay-off During Illness

Sick Leave

When ill, employees will send prompt notice of such illness to the garage. Employees on sick leave, who may be compelled to leave the city, will turn in their badges and all company property to the superintendent.

Employees who feign illness in order to obtain sick leave, will not be retained in the service.

Employees on sick leave for three (3) days or more, must bring a doctor's certificate before being permitted to return to duty.

Employees on sick leave for thirty (30) days or more will report to and pass examination by the company physician before being permitted to return to duty.

Employees not returning to work at the end of the period allowed for sick leave, and who fail to apply for an extension, will be automatically dropped from the roll.

Sunday and Holiday Work

In view of the volume of business which occurs on Sundays and holidays, leave of absence will not be granted on these days except in cases of extreme necessity.

Handling of Equipment

Mechanical Knowledge

Operators should acquaint themselves with the mechanical and the electrical equipment of coaches, in order that they may be able to make such necessary minor repairs as will result in the continued operation in accordance with schedule. This knowledge will also assist in correctly reporting trouble calls to the garage.

Inspection of Equipment

When boarding coach preparatory to going in service:

- (a) Test all lights, interior, head, tail and spotlights.
- (b) Test buzzers on each side of coach.
- (c) Note condition of interior of coach in regard to cleanliness and condition of window glass. Dust seats, window sills and hand rails.
- (d) Check condition of seats, feeling for loose tacks or screws; also note condition of floor.
- (e) Test horn and windshield wiper.
- (f) Test fire extinguisher by lifting to see that it is full.
- (g) Examine tires to see that they are properly inflated and wheel nuts are on securely.
- (h) See that coach has full and proper supply of gasoline, oil and water.
- (i) Test the door to see that it locks when closed and opens readily.
- (j) Test brake stop light by having someone step on brake pedal.
- (k) See that tire carrier is securely locked.

- (l) See that the controller or gear shift is in neutral position. Turn on ignition switch; see that the spark is retarded before starting motor. Never race the motor, especially when the weather is cold.
- (m) After taking coach out of garage, test both the hand brake and foot brake by applying each separately.
- (n) When ready to start, be sure you have all necessary equipment, and destination signs are reading properly.
- (o) Before going out on run make sure that coach is equipped with the necessary tools for emergency: jack, jack-handle, tire wrench, pliers, hammer and small screw driver. During the winter season, it is also necessary that you see that there is a shovel and tire chains on hand.
- (p) Assure yourself that interior of coach is clean and that there is no wet paint, varnish or anything else that might soil or damage clothing of passengers.

Putting Coach in Garage

Storing Coach

When putting coach away at end of run operators will observe following instructions:

- (a) Make sure motor is stopped and ignition switch in "off" position.
- (b) Hand brake properly set.
- (c) All windows and door must be closed, and lights extinguished.
- (d) Register must be locked.
- (e) Register record card and coach condition report must be removed and turned in at office.
- (f) Before leaving coach, walk through the interior and examine seats and floor for any lost articles, turning same, if any, in at office.

Careful Operation

Maintain a uniform rate of speed as much as possible. Know the speed laws of the state and municipalities through which you travel and operate accordingly.

Avoid jerking the coach by engaging the clutch too quickly, applying the brakes too harshly or feeding the gas unevenly.

Never turn corners at such a speed which might cause the coach to sway and thereby unnecessarily alarm your passengers. Handle your coach in a manner that will bring favorable comment at all times.

Use the shifting lever so as to get the maximum efficiency out of the motor at all times.

Watch carefully that the motor does not overheat and drive with the spark advanced as much as possible at all times.

When a stop is to be made of longer than two minutes duration, operators shall, before leaving driving position, shut off the motor. Unnecessary idling of the motor causes it to overheat and is likewise a waste of fuel.

Never pass another car on a hill, while going around a curve or while crossing a dangerous intersection. Never pass another car when there are cars coming from the opposite direction.

Keep to the right and do not "hog" the road, thereby bringing unfavorable criticism upon yourself from other drivers or the authorities.

Safety Provisions

When stopping to take on or discharge passengers, look in your mirror and see that the driver of the car in your rear has sufficient space to stop when you make your stop.

When stopping, starting or going around curves, always use the hand signals.

Do not go down any hill without shifting to low gear.

Look for the unexpected to occur and avoid recklessness at any time.

Observe all street or intersection stop lights and signal lights, and never attempt to run by a signal when it is changing to yellow or red.

When the road is slippery from ice, rain or snow, remember that safety takes precedence over schedules at all times and especially under such conditions.

Never attempt to pass a truck or another coach on a street or highway until you are certain that the driver of such vehicle knows your intention and gives you a signal to do so.

Approaching Intersections

Operators must approach every intersection with coach under full control and be prepared to stop in case of necessity. "Right of way" will never be accepted as an excuse for a collision.

Safe Braking Distance

When following another vehicle, operator will be careful always to maintain a safe braking distance. The condition of the road, state of weather, grade, rate of speed, condition of equip-

ment, density of travel, frequency of stops, range of vision and other similar factors must all be taken into consideration.

Horn

The horn must always be sounded when approaching vehicles, passing cars, when in the vicinity of schoolhouses when children are on the street, when nearing main traffic street intersections, just before starting after a stop, when backing coach, and at such other times and places as may be required for safe operation.

The horn should not be sounded when passing hospitals or places of worship during hours of service, except in cases of emergency only. The proper sounding of the horn is an accident preventive and unnecessary sounding becomes a nuisance.

Water on Road

Extreme care in operation must be exercised wherever water or slush has gathered upon the road. Particularly does this apply to the space beneath overhead bridges where the road is depressed, or where high water is encountered following heavy rain or a thaw. In such case prompt report by telephone must be made to nearest garage or terminal.

Under no circumstances should coaches be operated through water of such a depth as to damage the equipment. If it is safe to operate and becomes necessary to do so, speed should be reduced to such a degree to avoid splashing on pedestrians or passing vehicles.

Care at Road Obstructions

Street Excavations

Exceptional care must be exercised in passing over or around all street excavations, due warning being given of the approach of coach by repeated sounding of horn. When excavations are near stopping places, coach should be operated clear of same before stopping to take on or discharge passengers.

Workmen on Street

Where men are at work on streets, operator will sound horn and operate cautiously, stopping if necessary to avoid an accident. This same caution must be exercised in the vicinity of open manholes or trenches where such danger may exist.

Close Clearance

When approaching vehicles or other obstructions where clearance is doubtful, operators will reduce speed, sound horn and proceed only if it shall appear that coach will pass through in safety.

Slow Speed

Coaches will be operated at reduced speed when passing over street intersections, bridges, when passing obstructions or excavations, under bridges and viaducts, fire houses, hospital driveways, playgrounds and schools (when children are in the vicinity.)

Vision Obscured

When vision ahead is obscured by fog, rain, sleet, snow, smoke or any other cause, coaches should be operated only at such speed as will permit the operator to stop within the limits of his vision, and if the road is slippery, he should take that fact into consideration and govern himself accordingly. Under such conditions, safety of operation rather than the maintenance of schedules must be the first consideration. If conditions make it impossible to see through the windshield the windshield must be opened.

Pedestrians

Operators must always be on the alert for pedestrians crossing the street ahead of coach or walking along highways, especially at night. Speed must always be reduced and horn sounded at a sufficient distance to give pedestrian ample time to step to a place of safety.

Defective Equipment

Operators must examine coach constantly for any needed repairs or adjustments. If some part of the equipment fails to function properly, operator should endeavor to immediately locate trouble and make the necessary repair or adjustment, if same is within his province. If unable to do so he should call dispatcher, giving a clear report of the trouble and then abide by instructions received.

Care of Equipment

Brakes

Operators must keep close watch on condition of brakes and never continue to operate a coach with brakes that are defective, or insufficient for an emergency. If brakes go bad, operator must take this condition into consideration and operate with the greatest care only to such point where he can have

same adjusted or turn in the coach for repairs. Accidents caused by faulty brakes are a sign of negligence on the part of the operator and are chargeable to him as such.

Tires

The care of tires is very important and the life thereof can be considerably lengthened by watchfulness on the part of the operator. Frequent checking of the air pressure and running with the required pressure at all times, as well as constant inspection for nails and cuts, all go toward getting full mileage. Be careful in making turns and stops that tires do not strike the curb and do not slide. Avoid all objects in the road that might damage the tires and refrain particularly from operating on street car tracks and track work.

In case of tire failure, tire should be changed at once with as little loss of time as possible and garage should be notified promptly in order that replacement of spare can be secured.

Fueling Coaches

Operator should always stand at attention when coach is being refueled and check the amount of gas and oil delivered. It is the operator's duty to see that no fuel is wasted in this operation.

In order to guard against danger, smoking is prohibited in the proximity of coaches when they are being refueled.

Garage Safety

Operators are warned to avoid incurring any danger, either to themselves or to others, while walking or operating in garages.

Care must be exercised to avoid being caught between coaches, crushed against a wall, upright or other obstruction or falling into open pits.

Coaches being backed into or within a garage should be operated at a very low rate of speed. The horn should be sounded and operator should be on the alert to stop instantly if necessary.

A coach in a garage must never be started or the brakes released until the operator has first satisfied himself that no one is working beneath or about it, after which he will sound the horn as a warning of his intention to start.

Protection of Property

Employees should exercise great care to guard against fire. In case of fire on the company's property, employees, whether on duty or not, should unite in the protection of property.

* * *



Along a Route of the Utah Parks Company, U.P. Subsidiary

Report on

Motor Coach Operating Costs

Annual report of National Association of Motor Bus Operators indicates that operating costs average one cent per passenger mile

BASED upon a questionnaire sent to its operating members, who comprise about 20 per cent of all those engaged in common carrier service, the National Association of Motor Bus Operators, which is affiliated with the American Automobile Association, has issued a statement of average motor coach operating costs for the year 1929.

Due to the fact that it is practically impossible to directly compare one motor coach operation with another, because of the great variety of operating conditions which, taken together, have an effect upon costs, the report presents the average costs of several companies, separated into the variable factors common to all motor coach operations, for the purpose of giving a basis by which anyone can lay out a rough quantitative outline of operating expenses.

The report, as issued by the association, includes the

costs of both city and intercity operations. The intercity tables are reproduced in this article as being of greater interest to railroad operators and represent the experience of 54 companies, owning 2,437 motor coaches, traveling over 36,186 route miles and carrying 42,093,130 revenue passengers during the period reported. These lines represent 5.3 per cent of the common carrier coaches.

To facilitate comparison, the 1929 report groups the costs into city and intercity operations, average number of seats per coach, operating revenue and operating expense. This information is given in dollars per year per coach. The last table gives the revenue and expense costs on a per-coach-mile basis, and shows the total operating expense of a twenty passenger coach to be \$.238 per mile or \$.0119 per passenger mile, and of a thirty passenger coach to be \$.275 per mile or \$.0092 per passenger mile.

*for mile
per mile*

Motor Coach Operating Costs, 1929

0.119
20
2.380

INTERCITY MOTOR COACHES									
PER BUS OPERATING STATISTICS				PER BUS OPERATING REVENUE IN DOLLARS					
Average Seats Per Bus	Average Buses Per Company	Bus Miles Operated	Revenue Passengers Carried	From Passengers	From Charter Service	From Express and Baggage Carried in Buses	From All Other Operating Sources	TOTAL OPERATING REVENUE	
10	10.00	32,200	3,000	4,000	80	15	60	4,155	
12.5	13.20	32,518	4,030	5,450	95	66	84	5,695	
15	10.00	33,749	5,412	6,900	112	118	108	7,238	
17.5	25.71	35,856	7,270	8,350	133	169	131	8,783	
20	38.60	38,826	9,765	9,800	157	200	155	10,332	
22.5	48.62	42,603	13,116	11,250	187	271	179	11,887	
25	56.60	47,278	17,617	12,700	221	323	203	13,447	
27.5	58.00	52,982	23,663	14,150	262	374	226	15,012	
30	56.67	59,742	31,784	15,600	310	425	250	16,585	

PER BUS OPERATING EXPENSE IN DOLLARS									
Average Seats Per Bus	Repair Materials for Chassis	Repair Materials for Bodies	Repair Wages for Chassis	Repair Wages for Bodies	Tires and Tubes Including Repair	Depreciation Allowed on Buses	Superintendence of Maintenance	All Other Maintenance Items	TOTAL MAINTENANCE
10	158	62	129	41	400	800	20	15	1,625
12.5	201	79	147	46	431	970	53	36	1,963
15	254	101	182	57	463	1,107	81	58	2,303
17.5	322	128	233	73	494	1,220	104	79	2,653
20	415	165	309	97	525	1,318	124	100	3,053
22.5	523	207	413	130	556	1,403	142	121	3,495
25	666	264	557	176	588	1,479	157	143	4,030
27.5	838	332	743	235	619	1,547	172	164	4,650
30	1,074	426	999	316	650	1,609	185	185	5,444

PER BUS OPERATING EXPENSE IN DOLLARS									
Average Seats Per Bus	Advertising and Promotional Printing	All Other Promotion Items	TOTAL PROMOTION	Administrative and Office Salaries	Office Supplies	Insurance Against Claims (Injuries and Damages)	Property Insurance	Employee Insurance	All Other Administrative or General Items
10	51	49	100	220	38	190	36	44	70
12.5	69	63	132	262	53	223	41	42	90
15	93	80	173	313	69	262	46	41	114
17.5	126	102	228	373	84	308	53	39	146
20	171	129	300	445	99	362	60	37	187
22.5	231	165	396	531	114	426	68	35	239
25	312	209	521	633	130	500	77	34	306
27.5	422	264	686	755	145	588	88	32	391
30	570	333	903	900	160	690	100	30	500

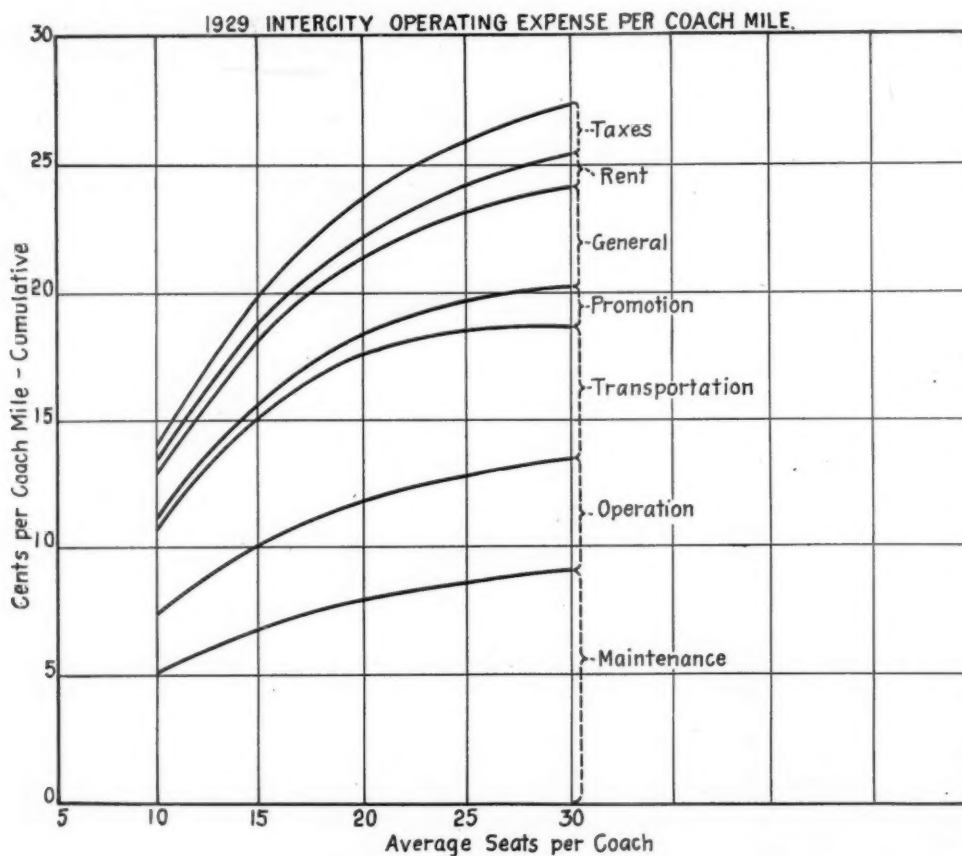
PER BUS OPERATING EXPENSE IN DOLLARS

Average Seats Per Bus	Gasoline Used in Buses		Lubricants Used in Buses	Wages of General Garage Employees	All Other Operation Items	TOTAL OPERATION	Wages of Drivers and Conductors	Wages of Station Employees	Superintendence of Transportation	All Other Transportation Items	TOTAL TRANSPORTATION
	Gallons	Cost									
10	2,800	540	75	80	40	735	750	236	70	59	1,115
12.5	3,405	614	88	163	51	916	1,005	248	85	77	1,415
15	4,141	697	104	230	72	1,103	1,209	290	104	107	1,710
17.5	5,036	792	123	285	100	1,300	1,379	338	127	150	1,994
20	6,124	900	145	333	134	1,512	1,525	383	154	201	2,263
22.5	7,488	1,023	171	375	172	1,741	1,653	415	188	259	2,515
25	9,057	1,162	201	412	214	1,766	1,766	434	229	320	2,749
27.5	11,015	1,320	238	445	254	2,257	2,168	433	279	382	2,962
30	13,395	1,501	280	475	288	2,544	1,961	422	340	433	3,156

PER BUS OPERATING EXPENSE IN DOLLARS

PER BUS INVESTMENT

Average Seats Per Bus	Rent of Extra Buses	Rent of Other Property	TOTAL RENT	Gasoline Tax	State Special Taxes	State General Taxes	All Local Taxes	TOTAL TAXES	TOTAL OPERATING EXPENSE	Investment in Buses	Investment in Other Property	TOTAL INVESTMENT
				@ Average of 3.04 Cents per Gallon								
10	27	125	152	85	60	28	20	193	4,518	3,250	4,860	8,110
12.5	38	144	182	104	128	31	25	288	5,607	4,655	4,860	9,515
15	55	167	222	126	195	34	30	385	6,741	5,779	4,860	10,639
17.5	78	192	270	153	263	37	35	488	7,936	6,716	4,860	11,576
20	111	222	333	186	330	40	40	596	9,247	7,519	4,860	12,379
22.5	158	257	415	227	398	43	45	713	10,688	8,222	4,860	13,082
25	225	296	521	276	465	46	50	837	12,327	8,847	4,860	13,707
27.5	320	342	662	335	532	49	55	971	14,187	9,409	4,860	14,269
30	455	395	850	408	600	52	60	1,120	16,397	9,920	4,860	14,780



A Graphical Presentation of the Operating Costs of Intercity Motor Coaches

REVENUE AND EXPENSE PER BUS MILE

OPERATING RATIOS

Average Seats Per Bus	TOTAL OPERATING REVENUE	TOTAL MAINTENANCE	TOTAL OPERATION	TOTAL TRANSPORTATION	TOTAL PROMOTION	TOTAL GENERAL	TOTAL RENT	TOTAL TAXES	TOTAL OPERATING EXPENSES	Expenses in Per Cent of Revenue	Operating Net in Per Cent of Investment
10	12.90	5.05	2.28	3.46	.31	1.86	.47	.60	14.03	108.74	-4.48
12.5	17.51	6.03	2.82	4.34	.41	2.19	.56	.89	17.24	99.08	+4.92
15	21.45	6.82	3.27	5.07	.51	2.50	.66	1.14	19.97	93.13	+7.32
17.5	24.50	7.39	3.63	5.56	.64	2.80	.75	1.36	22.13	90.36	+8.76
20	26.61	7.86	3.89	5.83	.77	3.06	.86	1.54	23.81	89.50	+9.17
22.5	27.90	8.20	4.09	5.90	.93	3.32	.97	1.67	25.08	89.91	+8.17
25	28.44	8.52	4.21	5.81	1.10	3.55	1.10	1.77	26.06	91.67	+5.78
27.5	28.33	8.78	4.26	5.59	1.29	3.77	1.25	1.83	26.77	94.50	+5.78
30	27.76	9.12	4.26	5.29	1.51	3.98	1.42	1.87	27.45	98.87	+1.27

New Equipment

Twin Coach Offers New Small-Capacity Coach

THE Twin Coach Corporation, Kent, Ohio, has developed a front entrance, rear exit, small-capacity motor coach which is constructed in detail similar to the large Twin Coach, with the exception that it has only one engine. The seating capacity of the new coach varies from 20 to 24 depending upon the arrangement of the seats.

The overall length, not including bumpers and visors, is 21 ft. 3 $\frac{5}{8}$ in., and the overall width is 86 in. The wheelbase is 140 in., and the tread, front and rear, is 72 in.

The material used in the body and frame construction is all steel. The body posts are made of rolled steel sections, and the side and end panels are constructed of 16-gage steel sheets. All metal joints are primed and painted, before assembly, with rust-resisting paint. The panels are riveted to the body framework with rust-resisting rivets.

The small Twin Coach is provided with a front entrance door ahead of the front wheels, and a rear exit door back of the rear wheels, both air operated and opening 23 in. in the clear.

The engine develops 90 horsepower, and its parts, with the exception of cylinders and pistons, are interchangeable with those of the standard Twin Coach engine used in the large model. Likewise, the electrical equipment, the air brake equipment, the transmission, clutch and drive lines are the same as those used in the large Twin Coach. The drive shaft is mounted in one amidship bearing support having special rubber mountings to eliminate noise.

The coach is equipped with four springs of equal length to assure a balanced load and easy riding. Timken front and rear axles are used, the rear being of the bevel gear drive type. The four wheel air brakes use



The Bucket Type Seats Are Arranged to Provide Wide Aisles

the same size shoes and drums as those used in the large coach. The small Twin Coach, ready for the road, weighs slightly over 10,000 lb.



The Small Twin Coach Carries From 20 To 24 Passengers

Mack Introduces a Salon Club Body

ONE of the recent developments of Mack Trucks, Inc., New York, is a 23-passenger salon club car for use on the Mack BK motor coach chassis. The body is designed to attract a class of patronage which demands the utmost in comfort and is willing to pay for it. While the exterior of the body is conventional, the seating arrangement and the other interior innovations are somewhat radical, the object being to give greater luxury and riding comfort.

The interior is divided into three sections: a forward driving compartment, the main salon in the center, and a



The Front View Shows the Buffet and Refrigerator. The Steward Is Standing In Front of the Door to the Driving Compartment

rear solarium. The driving compartment contains a lounge, which will accommodate four passengers, and an auxiliary folding seat alongside the driver. The lounge



Rear View Showing the Pullman Type Table and the Table Attachment for Armchairs

can be converted into berths for the operator and steward when necessary.

A novel feature of the design is the separation of the driving compartment from the passenger section by a built-in bulkhead, to reduce the drone of the engine and to isolate the operator and steward from the passengers. The solid bulkhead also prevents the passengers from watching the highway through the windshield. A side door leads through the bulkhead into the salon club, which has accommodations for ten passengers. Six of the seats are of the movable club chair type and face toward the center of the coach.

Built into the forward bulkhead is a buffet, a water cooler and a small refrigerator. Silver, china and glass service is provided for 18 passengers. Luncheon or refreshments may be served by utilizing small table attachments to each of the arm chairs and by setting up tables in front of the permanent seats. These tables may also be used for card playing.



Mack, 23 Passenger, Salon Club Type, Coach Body

From the front section, a 16-in. aisle leads between four back-to-back seats, placed over the wheel housings, into a solarium having four movable club chairs. This section contains a radio and a Tropic-aire heater, combined into one attractive unit upon which a table lamp is placed. The passenger section of the club car is lighted by individual, shaded side lamps.

The windows are of the drop sash type and are equipped with roller screens, making it possible to keep

the windows open while riding but preventing the entrance of insects and too great a volume of air when the coach is traveling at high speed. Electric fans, placed on the forward bulkhead, and ventilating fans in the rear portion of the roof, give a complete change of air every 60 seconds.

The floor is covered by a deep soft rug. Heavy baggage is carried on the roof and convenient racks for hats, newspapers, etc., are provided inside over the windows.

Chrysler Announces Fargo Motor Coaches

ORIGINAL body construction distinguishes the first motor coach model manufactured by the Fargo Motor Corporation, Detroit, Mich., a division of the Chrysler Corporation. The unique body design, combined with a short wheelbase, gives a large load capacity and great maneuverability, considering the overall length of the coach.

From a maintenance standpoint, the coach has attractive features. The entire power plant, including the engine, radiator, clutch and transmission, is quickly removable as a unit from the front end of the chassis. A large door at the rear of the engine compartment, opening into the coach interior, permits of easy accessibility to the power plant when repairs or adjustments are necessary. It is said that the engine can be removed and another installed in less than one hour's time.

The straight eight, L-head engine has a bore of $3\frac{1}{2}$ in. and a stroke of 5 in., giving 384.8 cu. in. displacement. It is said that the engine develops a maximum of 120 horsepower. The special steel crankshaft weighs 104 lb., and is rigidly supported by nine main bearings each having a diameter of $2\frac{3}{4}$ in., providing a total bearing area of over 112 sq. in. The engine accessories include a down draft carburetor, oil wetted, wire mesh air cleaner, fuel pump with sediment trap, centrifugal pump with thermostat, Bendix starter and an oil filter and cooler.

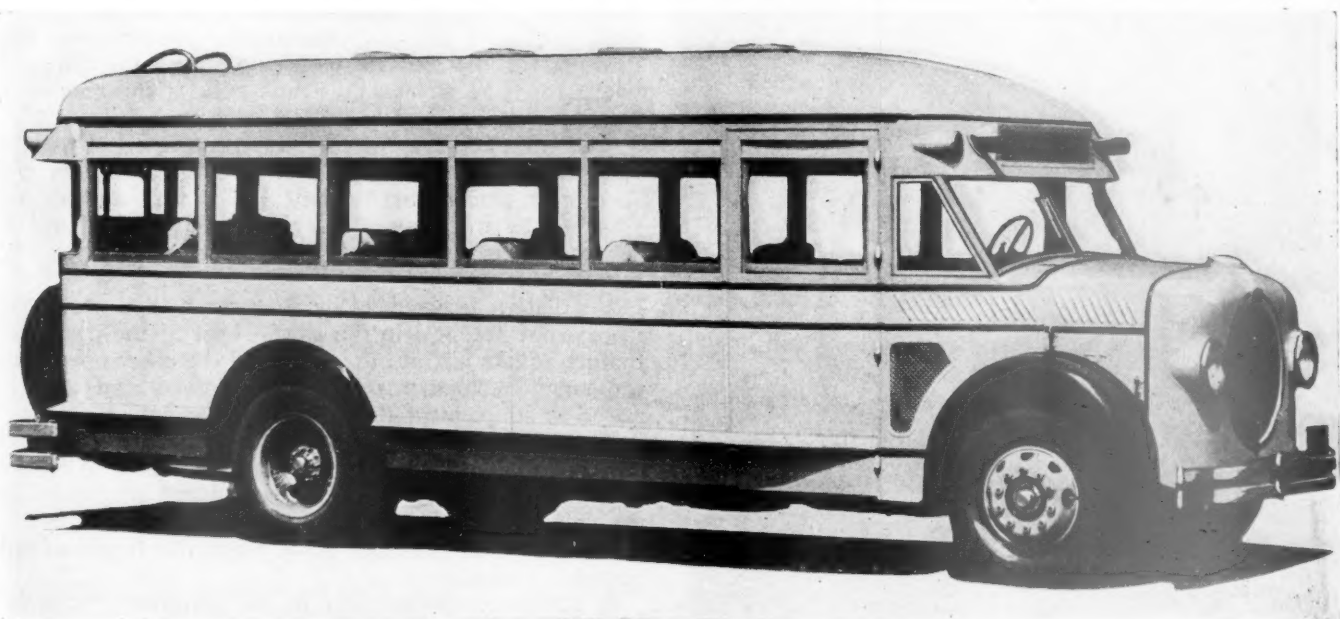
The 10 in. frame is of the double drop type and is 48 in. wide, giving great stability and a low center of gravity. Sidesway is said to be reduced to a minimum. A full floating, worm-drive type rear axle is used. The



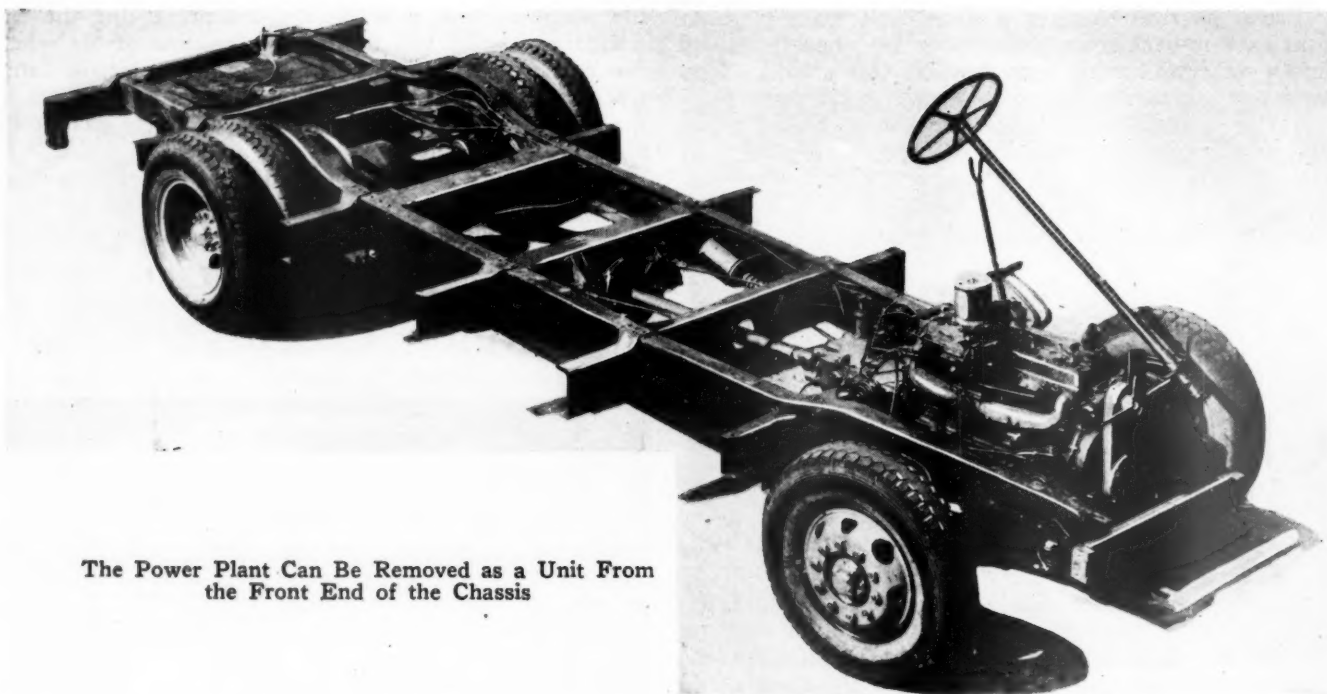
The Unusual Front Construction Is Designed to Reduce Wind Resistance

worm and sector type steering gear is mounted at the extreme forward end of the chassis, providing an additional 20 in. of seating space and permitting an unusually short turning radius of 27 ft.

The internal expanding, hydraulic, four wheel service



Fargo Model 91 Parlor Car Coach



The Power Plant Can Be Removed as a Unit From the Front End of the Chassis

brakes are weatherproof and self-equalizing. Vacuum type brake boosters are used. The gun iron brake drums are 16 in. in diameter and 3 in. wide on the front wheels, and 17¼ in. in diameter and 4 in. wide on the rear wheels. The hand brake is of the ventilated disc type, mounted on the propeller shaft, and departs from conventional design in that it operates on both sides of the disc. A rugged four-speed transmission is mounted on the rear of the engine.

Fuel from the 50 gal. tank, located at the rear of the chassis frame, is supplied to the engine by means of a pump driven by the camshaft. Balloon tires, 7.50 in. by 20 in., are standard equipment on the parlor car. The ventilated disc type wheels are attached by 10 studs. The wheel tread, front and rear, is 72 in.

Two styles of bodies are available, a parlor coach and a street car coach, both seating 21 passengers. The street car type has aisle space for 30 additional passengers. The body dimensions are identical, the overall

length being 247 in., the overall width, 96 in., and the inside width, 90¾ in.

In the parlor car the double seats on each side are of the three positions, reclining type, adjustable by means of a hand-operated control. The seats have arm rests on the aisle and window sides. The upholstery is rubber backed, flat mohair, which can be cleaned with soap and water. Leather upholstery is used for the driver's seat. Folding aisle seats can be furnished for the parlor car if desired, increasing thus its capacity to 25 passengers.

The unique front end construction is said to reduce wind resistance. The front corner pillars are made of steel angles with structural steel framework supporting the windshield. The entire front assembly is riveted, welded and reinforced with gussets to provide maximum rigidity. Seasoned second-growth oak is used for the framework. The body pillars are mortised, glued and screwed to the roof rail and anchored by malleable brackets on each side. All wooden parts are thoroughly treated with lead and oil, and non-rusting screws are used throughout. All outside body and roof lines adhere to true streamline effects, the trunk rack at the rear being recessed into the roof to preserve the smooth lines.

The sides and rear of the body are protected with an oak skid rail which is designed in such a manner that shocks are transmitted to the chassis frame and are not absorbed by the body. The side panels of both bodies and the baggage rack in the parlor car are made of Plymetl.

Ventilation is provided by four coach-type ventilators in the roof and two in the cowl. One of the cowl ventilators admits air into the body and the other opens into the engine compartment. The windows can also be raised to supplement the ventilating system.

The window glass is double strength and is mounted in nickel finished brass sash. Shades attached to rollers, operating in wooden grooves are standard equipment on the parlor car. The two-piece windshield is placed at an angle which prevents glare from the lights of approaching vehicles.

A 15-candle power light in an aluminum receptacle of modernistic design is located on each of the five side posts of the body.



The Reclining Chairs Used in the Parlor Coach Can Be Adjusted to Three Positions

Every-Day Problems

of Motor Coach and
Truck Operation



This Month's New Questions

Question No. 34

Ticket Agencies and Commissions

"To what extent do you use commission ticket agencies for the sale of transportation over your motor coach lines? If your tickets are also sold in railway ticket offices, how does the volume of sales in such offices compare with the volume sold by commission agencies? What characteristics are looked for in a prospective commission agent? What commissions are paid, and what privileges, such as passes, do your agents enjoy? In your territory is the tendency toward more or fewer commission agencies?"

Question No. 35

Reducing Charges for Maintenance

"How does your maintenance cost per mile today compare with that of a year ago? What factors have effected the change, if there has been one? What new maintenance equipment have you installed or what new methods have you devised during the past year which have brought about more efficient and economical maintenance? In your opinion, have maintenance methods in effect throughout the country kept pace with the improvements in equipment? Do you contemplate any changes in your maintenance practices during the next year?"

What Is Your Answer?

Reply to Question No. 30

Motor Coach Traffic and Fares

"What is the present per-mile basis of your motor coach fares? Is this lower or higher than a year ago? How does your rate compare with those of your com-

petitors? Is the trend of fares toward higher or lower levels in your locality? How have reduced fares or special excursion fares affected the volume of traffic? Is enough additional traffic secured to increase the gross revenue? If so, has the increase in revenue been accompanied by an increase in expense? If motor coach fares were to be standardized, what in your opinion would be a reasonable rate?"

Wide Variation in Rates

Due to the fact that our operation is made up of what were originally a number of independent com-

panies, their tariffs were adopted without exception, and our fares vary from 2½ cents to 7 cents per mile. Fares in effect are the same as they were a year ago. These are the same rates as our competitors have in effect.

The trend of fares on the main arteries is toward higher levels, and on the branch lines, toward lower levels.

If motor coach fares were to be standardized, my opinion of a reasonable rate for main line service would be approximately 2¾ cents per passenger mile, and 3½ cents to 4 cents on branch lines.

WM. L. MCCREDIE,
General Agent, Union Pacific Stages.

Replies to Question No. 32

Buying Motor Coach Equipment

"To what extent do you specify the kind of parts, equipment and accessories which are to go into the new motor coaches and trucks which you purchase? In your opinion, is it better to draw up detailed specifications for motor coaches and trucks to be purchased, or to accept the standard products of the manufacturers? Why? What particular items of equipment, apart from those which are standard, do you specify in ordering new coaches and trucks?"

Specifies Certain Accessories

We do not specify the kind of parts, equipment and accessories, except the heating equipment, horn, headlights, markers, baggage racks and some parts of the body construction, such as, for instance, the treating of parts of the woodwork with wood preservative. We also specify the kind of brakes and brake drums.

We have also made detailed drawings of the bodies for some of our equipment. Most of the parts I have mentioned are optional with the builders, so it entails no additional expense. We get equipment standard to what we are using so that we do not have to carry so many repair parts.

J. DICKSON,
Superintendent of Motive Power, Spokane, Portland & Seattle.

Southwestern Issues Specifications

We do to some extent issue specifications on all vehicles purchased. A decision as to whether or not to accept a manufacturer's standard vehicle depends on the type of service in which the vehicle is to be placed, and also on whether or not the standard specifications of the manufacturer meet these conditions. Another element some times involved is speed of delivery. The issuing of special specifications invariably delays the date of delivery, and where the operator must have equipment as early as possible, it is sometimes advisable to accept the manufacturer's standard and make alterations at a later date.

In the case of motor coaches, this company often specifies air brake installation, even though air brakes may not be standard equipment. We invariably specify the size of tires and wheels, inasmuch as our experience

has shown that the standard specifications on tire sizes are not adequate to meet the conditions surrounding our operation. We always specify the seating arrangement and the types of seats.

In so far as possible, we also draw up detailed specifications regarding the lights on the vehicle. This, incidentally, has been one of our greatest difficulties in maintaining motor coaches. It appears that no two manufacturers use the same design of marker lights and reading lights, and rarely do two models of the same manufacturer have identical specifications. In order to properly service vehicles with a number of different standards of light lenses, it is necessary to carry an excessive stock. We also specify the voltage of the electrical system.

In purchasing motor trucks, we specify tire sizes, wheel base, air brake installation, gear ratio, and in some cases the size of engine. We also specify the load which is to be placed on the vehicle and require a guarantee as to the speed the vehicle will make with this load on level gravel roads. We have completely abandoned hope of purchasing uniform bodies for motor trucks, and consequently we have installed our own body shop and build bodies to suit our own specifications. By this means all of our freight bodies have identical types of markers and dome lights and the same method of wiring. They are constructed of material which experience has shown will stand up in our operation and have many features which are necessary for the peculiarities in our system.

For example, we have designed all freight van-type bodies so that air is continually circulating through them while in motion. This feature is necessary as we are obliged to haul live stock for the express company. At several times it has been necessary for us to require the manufacturer to change the voltage of his standard electrical system. Inasmuch as our operation includes the movement of a number of four-wheel trailers, and these four-wheel trailers during their trip may be hauled by two or more different motor vehicles, it follows that all of our motor vehicles must have electrical systems of the same voltage. We have adopted the 12-volt system as our standard and will not purchase motor vehicles unless they are equipped with the 12-volt system. We also specify the speedometer installation on all vehicles not standard-equipped with speedometers.

After having received the vehicle, there are a number of accessories which we install ourselves, such as speed recording devices, fare registers and fire extinguishers.

WARREN A. TAUSSIG,
General Superintendent, Southwestern Transportation Company.

May Specify in Future

Up to this time we have not specified the kind of parts, equipment or accessories going into new motor coach equipment. Generally speaking, we think the satisfactory plan is to take a standard piece of equipment from the factory of a representative company, if after trial that piece of equipment meets our needs.

There are, however, certain special parts or accessories which we have found to be desirable and which we will probably have incorporated in the make-up of any future equipment we may buy. We will do this because our experience indicates that these particular features may be more adaptable to our operating conditions, or may have a particular appeal to our riders.

M. F. STEINBERGER,
Manager of Highway Transportation, Baltimore & Ohio.

Replies to Question No. 33

Motor Coach Depreciation—
Fast or Slow?

"What method of estimating depreciation on your equipment—for accounting purposes—did you adopt when you began motor coach operation? How have your original estimates checked with your actual experience in operating and wearing out equipment? In what ways, if any, have you changed your method of figuring depreciation for accounting purposes since the beginning of operations? What do you now consider the most accurate basis of charges to be made for depreciation?"

Mileage Basis Used, but Rates Have Varied

The idea of depreciation on a mileage basis has existed since the Northland Transportation Company first started. The rates, however, have varied from time to time, so that we now have a basis per mile which would depreciate a coach in about five years.

However, our experience to date has shown that these coaches are actually depreciated out of existence in three and a half years, and it will naturally follow that we will perhaps lower our present rate in order to extend the actual figures to those estimated.

R. W. BUDD,

President, Northland Transportation Company.

Suggests Combination of Time and Mileage

We are just about to review the adequacy and propriety of the depreciation method we have had in force for several years, namely, 20 per cent per annum.

This was adopted when we started our motor coach operations, all of which were then suburban, producing an average mileage per coach of approximately 40,000 miles per year. Of course at such comparatively low mileage, coupled with the lack of standardization in types of equipment then obtainable, tending toward earlier obsolescence, the time factor seemed to be entirely justified. Since then, however, with the establishment of intercity lines, in the operation of which the average mileage mentioned has been increased two fold or more, and in consideration of the more permanent standards that have been developed and adopted, the situation has materially changed.

It has occurred to me for some time that a more sound basis than either time or mileage, using one exclusive of the other, would be to use both. In the application of this principle, a life expectancy would be estimated on a time basis of, say, five years, and a mileage basis of 250,000 to 300,000 miles, depending on the character and elements of the service. Where the average mileage per annum in a given service is known to be less than fifty or sixty thousand miles, depreciate the vehicle on a time basis of 20 per cent a year; otherwise, use the rate per mile.

A. C. TOSH,

Superintendent, Reading Transportation Company.

Raised Depreciation Rate on Trucks

From previous experiences of members of our organization, we set up a mileage we expected to obtain

on each type of equipment as it was purchased. We further set up a mileage we expected to obtain on all equipment taken over from lines purchased. We use the rate of depreciation per mile necessary to totally retire these vehicles when they have made this mileage. We apply the mileage depreciation for every mile made.

First, we determined that no vehicle would be put on the books at a depreciation rate that would not completely write it off in five years. This was the only way in which time was considered.

So far our system of depreciation has worked out almost perfectly on used equipment which has already been written off. As far as our coach equipment is concerned, it appears that it will work out as satisfactorily as anticipated. It has been necessary, however, to raise our depreciation rate on some small equipment that makes very short runs and consequently little mileage.

On truck equipment it has been necessary to raise the depreciation rate on the majority, as the mileage this equipment is making will not write them off in five years.

Depreciation and maintenance are handled entirely separately, and we feel that in most instances, with our mechanical set up running as it is, if the equipment does not become obsolete through some new development, we should have a definite value in this equipment when it is entirely off the books. However, we do not feel it is safe to anticipate this value as laws and new developments have been passing so much equipment into the discard within the last few years.

D. W. RUSSELL,

Vice-president and general manager, Southwestern Transportation Company.

* * *



A 15½-Foot Motor Coach Ticket

Photo shows Harvie Tillotson (center) of Pittsfield, Mass., upon his recent arrival at Los Angeles, Cal., in the course of a 9,000-mile motor coach tour of the country. The inter-line ticket for the journey cost \$239 and measured 15½ ft. when purchased at Pittsfield; 6½ ft. of the ticket remained unused when Mr. Tillotson arrived at Los Angeles.

Motor NEWS Transport

Motor Transport Hearings Open Nov. 17 at St. Louis

Interstate Commerce Commission announces complete schedule of sessions to be held in principal cities throughout the country

Hearings in connection with the Interstate Commerce Commission's investigation into highway operations conducted by all common carriers subject to its jurisdiction will commence on November 17 at St. Louis. The sessions, which will be conducted by Commissioner Ezra Brainerd, Jr., and Examiner Leo J. Flynn, will be held in principal cities throughout the country with a final hearing in Washington on March 4. The inquiry, which was announced on May 12 (see *Motor Transport Section* of May 24, page 1295), was launched on the Commission's own motion; the order named as respondents "all common carriers by rail, water, or rail and water, subject to the Interstate Commerce Act." It further stipulated that among other objects the investigation would be "for the purpose of making such recommendations to Congress respecting such legislation as may be necessary or desirable in the public interest to accomplish further or more efficient co-ordination of motor transportation."

Following this the commission on July 2 issued a second order transmitting to all respondents a questionnaire in connection with the investigation. Replies were returnable August 15.

The complete schedule of hearings is as follows: St. Louis, November 17; Kansas City, November 21; Dallas, Texas, November 28; New Orleans, December 3; Atlanta, December 8; Detroit, December 11; Boston, December 15; New

York, December 18; Chicago, January 5; St. Paul, January 12; Seattle, January 19; Portland, January 22; San Francisco, January 27; Los Angeles, February 2; Denver, February 9; Omaha, February 14, and Washington, D. C. March 4.

The notice further says:

"Parties in interest at the discretion of the presiding commissioner or examiner will be given opportunity to present evidence relative to the proceeding in the following order, unless otherwise directed at the hearings: (1) common carriers subject to the interstate commerce act, (2) other common carrier operators of motor busses or motor trucks, and (3) other parties in interest.

"Each respondent who participates directly or indirectly in motor vehicle operations should, at one of the above hearings, produce witnesses competent to give testimony as to the matter of this investigation.

"For the purpose of this proceeding, Examiner A. E. Stephan is designated to examine the witnesses with a view to assisting the commission in the development of the facts and record.

"The hearing will be confined primarily to the matter of co-ordination between common carriers subject to the act and common carriers by motor vehicle. Testimony should be confined to factual statements; arguments can be embodied in briefs which parties will be afforded opportunity to file."

Trucking Plan of L. & A. Sanctioned in Louisiana

The Louisiana Public Service Commission has approved the plan of the Louisiana and Arkansas to provide pick-up and delivery service for l.c.l. freight at points served by its lines. Motor trucks will be used to carry freight between railway stations and the places of business of shippers and consignees, and freight cars will be used for transportation of shipments between cities.

Motor Transport Division Meeting November 11-13

Changed dates and program subjects announced by Chairman Russell

The dates for the third annual meeting of the Motor Transport Division, American Railway Association, to be held at Chicago, have been advanced to November 11 to 13. The change from November 18 to 20 was made necessary because of a conflict between the dates tentatively fixed and that of the annual member road meeting of the A.R.A. The program for the meeting lists several subjects for reports and discussions by the three sections of the division.

The announcement sent out by Division Chairman A. P. Russell, executive vice-president of the New York, New Haven & Hartford, urges all member roads to be represented by such officers as are interested in the several phases of the Division's work, particularly freight and passenger traffic representatives. With such co-operation it is hoped "that the Division may be of service to the members in the development of policies to which the railways as a whole can subscribe, especially in connection with pending legislation."

The program is as follows:

FIRST DAY

Tuesday, November 11.

(A. P. Russell, Chairman, Motor Transport Division, Presiding).

Report of General Committee—A. P. Russell, Chairman.

Report of Law Committee—R. N. Van Doren, Chairman.

(Continued on page 914)

D. & R. G. W. Would Parallel Rail Line with Highway Routes

The Rio Grande Transportation Company, motor coach and truck operating subsidiary of the Denver & Rio Grande Western, which is already operating a number of highway routes in D. & R. G. W. territory, has applied to the Colorado Public Utilities Commission, according to reports, for permission to extend its motor coach and truck service to highways paralleling all of the railway lines of its parent company.

Alabama Plans the Prosecution of Illegal Highway Operators

The Public Service Commission of Alabama, through Assistant Attorney General J. W. Brassell, as special counsel, plans to conduct a survey for the purpose of identifying and prosecuting all persons operating motor coaches without legal authority in that State. The campaign, it was stated, will be directed especially against those highway operations which come into competition with authorized motor freight lines and railroads.

**Better Business Contest
of Greyhound Agencies**

A better business contest is under way among the agencies of the lines operated by the Greyhound Management Company. The contest, which will run through October, November and December, is designed to increase the ticket sales of the agencies during months when business normally is decreasing. One hundred individual cash, merchandise and pass prizes are to be awarded, including a grand prize of \$250 in cash, and a silver trophy cup. There will be three prizes of \$100 in cash to the monthly winners, in addition to thirty other prizes each month.

The winning agencies in October will be those doing the largest amount of business over or nearest under their own September records. Prizes in November will be awarded to those showing the greatest increase in business over October, and so on. The agencies are divided into five classes, according to volume of ticket sales during September.

**Traffic Report Feature
of N.A.M.B.O. Meeting**
*Twelve recommendations of
special committee endorsed
by convention*

Members of the National Association of Motor Bus Operators, in their Fourth Annual Convention held in Chicago on September 25 and 26, took action toward the establishment of uniform practices in connection with motor coach operation and the solicitation and handling of passengers. A report of a special traffic committee, recommending twelve practices in the handling of traffic for uniform use by all motor coach lines, was endorsed by the convention.

The following officers were elected to hold office during the coming year: President, A. M. Hill, Blue & Gray Transit Company, Charleston, W. Va.; Vice-President, R. T. Whiting, Washington Motor Coach Company, Seattle, Wash.; Directors-at-large, A. T. Barrett, Dixie Motor Coach Corporation, Dallas, Tex.; A. C. Spurr, West Penn Electric Company, Wheeling, W. Va.; O. S. Caesar, Greyhound Management Company, Cleveland, Ohio; Associate Member Directors, H. E. Listman, General Motors Truck Company, Pontiac, Mich.; W. L. Stancliffe, ACF Motors Company, New York, N. Y.; T. R. Dahl, the White Company, Cleveland, Ohio; Directors representing regional districts, C. M. Sears, Jr., Automotive Transportation Company, Providence, R. I.; E. W. Wakelee, Public Service Co-ordinated Transport, Newark, N. J.; T. L. Tallentire, Interstate Transit,

(Continued on page 914)

**International Road Congress Urges
Co-ordination of Transport Agencies**

*Discussions result in adoption of conclusions on the
subject during recent convention sessions
at Washington, D. C.*

Co-ordination of highway transportation with railways and other agencies of transport was among the subjects discussed at the recent Sixth International Road Congress held in Washington, D. C. The discussions on this subject were led by Professor Henry R. Trumbower of Wisconsin University, while A. J. Brosseau, vice-president of the Chamber of Commerce of the United States presided at the session.

The conclusions adopted, as reported in a recent issue of the United States Daily, were as follows:

1. Highway transportation has in the last decade become firmly established in the general scheme of transportation in the important and progressive countries of the world. The people and government agencies of the several countries are beginning to investigate the possibilities of the co-ordination in the movement of persons and commodities by highway on the one hand and by rail, water, and air on the other. The co-ordination between different systems of transportation by land, by water, and by air should be so arranged that every transport should be done, as far as possible, through the most economical way and that most fitted to the particular needs. In this matter, the public authorities should adopt such legal and fiscal regulations so as not to disturb the natural economic conditions of each transportation system.

2. The co-ordination of rail and highway transportation is the more pressing problem.

3. The development of highway transportation through the use of the motor vehicle has not been of equal intensity in all countries. To the degree that this development has gone on in a country, to that extent has the problem of the co-ordination and correlation of highway and rail transportation facilities become the more pressing in its demand for a solution based upon broad economic and scientific principles so that the public as a whole may enjoy the maximum benefits of all its transportation agencies.

4. Transportation by highway and transportation by rail are partly complementary and partly distinct services. Each one must be judged on its own merits. The considerations which govern the one are not the same as the considerations which govern the other. One can not be placed in a subordinate position as compared with the other.

5. In considering this problem of co-ordination it must be recognized that common carriers of both passengers and freight constitute but a very small part

of the total highway traffic. In general, private automobiles form the most important part of highway traffic and it is they which compete most seriously with the railways in passenger traffic. Where such a condition occurs public authorities should permit the railways to adjust their train schedules so as to reduce passenger train-miles as much as possible. Railroads find it advantageous to substitute for unprofitable trains, busses operated by them or others.

6. The operation of all public motor omnibus services, irrespective of ownership, must be subject to adequate control by a responsible authority embracing a wide area so as to insure regularity, efficiency, and adequacy of service, safety of the public at large, and avoidance of excessive competition and uneconomic fares.

7. In certain situations it is found that the small amount of traffic that highway common carriers might draw from the railways is largely compensated by the feeder service which they afford to main lines of railroads. This is especially true in mountainous countries where railway construction is extremely expensive. There the automobile, by superseding the old and slow means of transport, has brought about a revolution in traffic and has caused such regions to be better developed industrially and commercially.

8. In considering the various proposals for a closer co-ordination between rail and highway carriers, one or more of the following three plans is usually followed:

(a) Voluntary co-operation between railroad companies on the one hand and operators of busses and common carrier trucks on the other.

(b) Inauguration of highway transport services by the railroad companies or financial and administrative control or participation exercised by these companies in the conduct of highway transport undertakings.

(c) Quasi-legal co-ordination with obligation placed on the different transport companies to agree to the creation of a system of cooperative operation and in case agreement is not reached the enforcement of compulsory co-ordination by governmental authority.

9. Automobile and bus operation, as well as motor-truck operation, produces new traffic, part of which the railroads could not handle, and which is enormously helpful in moving shipments of less than carload, and by introducing the use of containers, and thus helping to solve transportation problems between

(Continued on page 915)

Transportation Meeting of S. A. E. at Pittsburgh

Maintenance and supervision of motor vehicles among subjects featured

Papers and discussions relating to the maintenance and supervision of motor vehicles were featured at the national transportation meeting of the Society of Automotive Engineers held October 22, 23 and 24, at the William Penn Hotel, Pittsburgh, Pa. The 1929 transportation meeting of this society was held at Toronto as a joint conference with the Motor Transport Division, American Railway Association.

The program of the sessions follows:

WEDNESDAY—OCTOBER 22

MORNING SESSION

Chairman: A. H. Gossard, Midwest Utilities Co.

1. Selection of and Results Obtained from Motor Vehicle Performance Indicating and Recording Instruments.

C. W. Stocks, Bus Transportation

AFTERNOON SESSION

Chairman: F. C. Horner, General Motors Corp.

1. Scientific Inspection of Motor Vehicles and Their Units.
2. Motor Vehicle Maintenance to Prevent Road Delays.

H. B. Hewitt, Philadelphia Rural Transit Co.
P. V. C. See, Northern Ohio Light & Power Co.

EVENING

1. Motorcoach and Motor Truck Activity Committee Meeting.
2. Transportation Activity Committee Meeting.
3. American Petroleum Institute Committee.

THURSDAY—OCTOBER 23

MORNING SESSION

Chairman: Dr. W. A. Gruse, Mellon Inst. of Industrial Research

1. Practical Mathematics for Determining Tractive Ability.
2. Taking Advantage of Latent Heat of Cooling Water.

A. M. Wolf, Newark, N. J.
Adrian Hughes, Jr., United Railway & Electric Company of Baltimore

AFTERNOON SESSION

Chairman: C. F. Kells, West Penn Electric Co.

1. How the Principles of Economics in Motor Vehicle Transportation are Taught by Educational Institutions.

Prof. J. W. Trimmer, Carnegie Institute of Technology

2. Motor Vehicle Maintenance Cost Reduced by Training Drivers.
3. A paper on Motor Vehicle Maintenance and Moving Pictures.

J. S. Lowe, Akron Transportation Co.
L. V. Newton, Byllesby Engineering & Management Corp.

6:30 P. M.—S.A.E. TRANSPORTATION DINNER

Host: Pittsburgh Section
Toastmaster: Walter Rosenbaum, V. P., Treas., Rosenbaum Co., Pittsburgh, Pa.
Principal Speaker: F. R. Phillips, Pres., The Philadelphia Co., Pittsburgh, Pa.

FRIDAY—OCTOBER 24

MORNING SESSION

Chairman: J. F. Winchester, Standard Oil Co. of N. J.

1. Aluminum Alloys in Commercial Motor Vehicles.

F. D. Goll, Aluminum Company of America

2. United States Army Maintenance.

Lieut. Col. Brainerd Taylor, Office of the Quartermaster General

Truck Registrations in Kansas

Increased 6,106 over Last Year

An increase in the number of motor trucks and trailers registered in Kansas during the first nine months of 1930 as compared with same period of last year, was reported by Victor L. King, vehicle

commissioner. At the same time Mr. King stated registrations of other types of vehicles fell off as compared with 1929.

A total of 585,400 applications for licenses for all types of motor vehicles were received up to September 1. Of this number, 499,838 were for pleasure cars as against 507,529 in the first three quarters of 1929. Truck licenses in the present year, however, increased 6,106 over last year and totaled 80,803.

Store-Door Service Extended

In Texas by Southern Pacific

The Southern Pacific has extended its store-door collection and delivery service to points on its lines between San Antonio, Tex., and Del Rio, and between San Antonio and Corpus Christi.

Correction

The caption reading "Acetylene Gas Now Moves in Large Quantities by Motor Truck," which appeared on page 650 of the *Motor Transport Section* of September 27, was in error to the extent that the cylinders illustrated were oxygen cylinders.

Colorado Grants Certificate

to San Luis Valley Southern

The San Luis Valley Southern has been given permission by the Colorado Public Utilities Commission to operate motor coaches and trucks in passenger and freight service between Jarosa, Colo., and the Colorado-New Mexico state line.

Chicago & North Western Seeks

Chicago-Fulton, Ill., Permit

The Chicago North Western has applied to the Illinois Commerce Commission for authority to operate a motor coach line between Chicago and Fulton, Ill. This would be the first Illinois route operated by the North Western which is at present associated with the Union Pacific in the operation of motor coaches through the Interstate Transit Lines.

Monon Highway Subsidiary

Seeking Indiana Certificate

The Monon Transportation Corporation, highway subsidiary of the Chicago, Indianapolis & Louisville, has applied to the Public Service Commission of Indiana for permission to operate motor coaches between Monon and Lafayette, Ind. The proposed operation will replace train service along the route.

The Indiana Commission has also disposed of several other recent applications for the operation of highway service within that state. The Lake Shore Coach Line, Inc., has been authorized to operate motor coaches between Muncie and the Ohio-Indiana line and between Highland and Indiana Harbor.

Elroy Freehill of Danville, Ill., has been authorized to operate an interstate motor coach line between that city and Fort Wayne, Ind.

Impact Tests to Provide Data For Regulation

Study of motor coaches in- tended to help solve prob- lems of legislation

The tests to determine the impact of motor coaches on modern highway surfaces, now being conducted by the United States Bureau of Public Roads, (see *Motor Transport Section* of August 23, page 419) are intended to help solve the question of how much and what kind of legislation is needed for the regulation of highway passenger carriers, according to C. P. St. Clair, associate engineer of the Bureau of Public Roads.

"Research of this sort, it is hoped," said Mr. St. Clair, "will form the basis of rational taxation of buses and of legislation concerning their total load. Most of the States now limit total highway loads, particularly in the case of motor trucks. There is involved a question of determination whether those maximum limits are sound for application to passenger buses."

The tests which are being conducted at the Aberdeen, Md., proving ground of the War Department have been in progress for several weeks and supplement work that already has been done by the Bureau of Public Roads, mainly at the Arlington Experiment Farm, Arlington, Va., it was stated. The investigations now in progress were said to cover heavy and light loads, tire pressures, variations of impact with increases of speed, and other problems.

"The tests," continued Mr. St. Clair, "are measuring the vertical force produced between the wheels and the road when the bus wheels strike obstructions or irregularities of road surface. This is done by placing obstructions, such as two-inch planks, on the road, or by actual runs over roads having natural irregularities of surface. The tests also are to determine the variations of the force produced as the speed of a bus increases."

"The tests are very nearly complete but the information obtained from them has yet to be worked out, and the data will not be available until a complete report is drafted after the beginning of next year."

"In making the tests, we have been using both balloon and high-pressure tires."

"The results of the tests should show the magnitude of the force produced on the roads by bus tires, and the most desirable types of tire installation from the standpoint of their impact on the roads. . . ."

"We have had investigations in the past relating to motor trucks. Nearly all motor buses use pneumatic tires, while motor trucks use cushion, solid and pneumatic tires. A great many States tax a vehicle on the basis of the tire equipment, a higher tax for solid tires, a lower tax for cushion tires, and a still lower tax for pneumatic tires. The impact tests in the past have shown that there is a sound basis for legislation on the subject."

Pennsylvania Permits Required for All Lines

*Interstate as well as intrastate
operators must obtain
certificates*

Holding that a motor carrier engaged in interstate or intrastate transportation must obtain a certificate for operation within Pennsylvania, the Public Service Commission of that state has ordered the Waer Bus Company, Inc., to cease operating as a common carrier of passengers within Pennsylvania. The Waer Company, according to the Commission, was operating motor coaches between Easton and Philadelphia via Phillipsburg, N. J., and Riegelsville, N. J. A complaint alleging that this operation was unlawful had been filed with the Commission by the Philadelphia Rapid Transit Company.

"Respondent," the Commission said, "has not applied to this Commission for a certificate of public convenience authorizing its operation in Pennsylvania, but contends that its operations in this state over the route named involve interstate commerce solely and that such application is accordingly unnecessary.

"The decisions of the Federal courts, however, leave no room for doubt that the requirements of the Public Service company law must be complied with and proper application and registration with the Commission effected, even though the operation be wholly in interstate commerce. . . .

"In accordance with the provisions of the act, the validity of which as applied to interstate carriers is recognized by the above decisions and others, the Commission has adopted Rule 14 of its Revised General Order No. 18, which provides:

"Motor vehicle transportation companies operating exclusively in interstate commerce upon filing application with the Commission upon form prescribed and furnished by it and complying with such procedure as may be lawfully required may be issued certificate of public convenience without establishing public convenience and necessity; this rule to become null and void when jurisdiction over interstate motor vehicle transportation companies is assumed by the Federal Government."

"This rule applies to all interstate common carriers of passengers or freight. The respondent has no right to engage in either interstate or intrastate transportation over the highways of the Commonwealth of Pennsylvania without first applying for or obtaining the certificate of the Commission. This has not been done. It is consequently unnecessary to pass upon respondent's contention that it is engaged in interstate commerce, as in any event its operations are in violation of law."

Missouri Pacific Applications in Arkansas Heard October 9

The Arkansas Railroad Commission on October 9 held a hearing on the application of the Missouri Pacific Transportation Company for authority to lease for one year the motor coach routes operated by the Pickwick-Greyhound Lines be-

tween Marion, Ark., and Marianna, between West Memphis and Marianna, via Chatfield, and between West Memphis and Helena. Under the terms of the lease, the Missouri Pacific Transportation Company will operate its motor coaches in intrastate service on the Pickwick-Greyhound Lines' certificates.

At the same time, the commission considered an application of J. T. Bennett and the Missouri Pacific Transportation Company for cancellation of certificates now held by Bennett, permitting the operation of motor coaches between Camden and Gurdon and between Prescott and Camden, and for transfer of the certificates to the Missouri Pacific Transportation Company.

Manchester & Oneida Allowed To Replace Trains with Coaches

The Manchester & Oneida, a short line railroad in Iowa, with headquarters at Manchester, Iowa, has been granted authority by the Board of Railroad Commissioners to reduce its train service and to operate motor coach service in its territory.

Would Install Motor Coaches Along Abandoned Electric Line

Application has been made by the Greyhound Lines to the Indiana Public Service Commission for permission to operate motor coaches between Indianapolis, Ind., and Lafayette. The petition gives as justification for the additional service the proposed abandonment of electric railway service now operating between the two cities.

Coaches Used in School Service Need No Licenses in Alabama

Alabama motor coaches used exclusively for the transportation of children to and from schools are not required to carry license tags, according to a recent ruling of Chairman Henry S. Long of the Alabama Tax Commission.

This exemption, however, it is pointed out, does not extend to the driver who is required to obtain a chauffeur's license; nor does it apply where the motor coach is used only in part as a school coach and is in commercial service as well.

Pickwick Greyhound Continue Low Fares Until November 30

The Pickwick Greyhound Lines and affiliated motor coach companies have extended until November 30 the low summer excursion fares which have been in effect for several months. These tariffs were originally scheduled to expire on September 30.

The low rates apply to both eastbound and westbound travel and are effective from coast-to-coast and between intermediate points. They have increased travel to a marked degree, according to the statement of H. U. Porter, district traffic agent.

Vehicle Sizes Concern Kansas and Missouri

*Governors stress the problem
in recent letters to
highway officials*

The governors and highway officials of Missouri and Kansas are now directing particular attention to the dimensions of motor vehicles operated in commercial service on the highways of their respective states. Governor Henry S. Caulfield of Missouri referred to the subject in a recent letter to T. H. Cutler, chief engineer of the Missouri Highway Commission while Governor Clyde M. Reed of Kansas has written a similar letter to the Highway Commission of that State.

Governor Caulfield's letter as reproduced in a recent issue of the United States Daily follows:

"The misuse of the State highways by commercial trucks is becoming more and more of a menacing evil. Many of them are too wide and too long, and, it seems to me, too heavy.

"The automobile transports are the greatest interferers with traffic—carrying five automobiles—they move slowly along the highway, and are so long that in passing them there is imminent danger of colliding with approaching automobiles.

"Please advise me of the powers and intentions of the Highway Commission as to remedying these evils, and if additional legislation is needed."

In reply Chief Engineer Cutler said: "I wish to acknowledge receipt of your letter of Sept. 25, relative to the misuse of the State highways by commercial trucks and automobile transports. I think we could add the subject of passenger buses to the other two big evils.

"This Department has rather definite authority in controlling weight limits, both gross and axle load limits, and has for this purpose 15 men patrolling the highways to catch the overloaded vehicles. Except in a few counties, however, where these men happen to be deputized, we have no authority to make arrests. We would be glad to cooperate with any agency you might suggest in an attempt to correct the present motor vehicle laws to overcome the above dangerous abuses of the highways by special interests.

"I am asking our attorney for any suggestions he may have concerning what can be done at present, and to cooperate with any agency you might suggest for formulating a better system of laws to be submitted to the next Legislature."

Meanwhile the Missouri Public Service Commission has acted to bar from the highways of that state all motor coaches exceeding 30 feet in length. Notices to that effect have been served on three companies which are alleged to have some vehicles longer than this legal limit.

At a meeting in Jefferson City, Mo., on October 14, the commission refused to grant to the Pickwick-Greyhound Lines a special temporary permit to enable the operator to continue to use motor coaches between St. Louis, Mo., and Kansas City,

which exceed in size and weight the limitations prescribed by it. The highway department gave the Pickwick-Greyhound Lines until October 27 to replace the over-size equipment. After that date the commission proposes to enforce strictly the restrictions on sizes and weights of motor coaches provided in the Missouri motor coach law.

According to reports, the current activity grew out of an incident which occurred several weeks ago, in which Governor Caulfield, while driving on one of the state highways, was forced from the road by a large motor truck. Drivers of a number of motor coaches have been arrested and charged with operating over-size and over-weight coaches during the last few weeks.

The Pickwick-Greyhound Lines are said to be operating 57 large motor coaches on the Missouri highway. The company asked a special permit to allow it until February 1 to substitute lighter and smaller equipment for the large coaches. The state officers were informed that it would be impossible for the company to replace the present equipment immediately with motor coaches which would comply with the Missouri law and at the same time maintain the standard of service that has been furnished. This request for a special temporary permit, however, has been denied.

Governor Reed of Kansas says in his letter that the use of the state highways by "long trailer-trucks and over-size vehicles" presents a serious question and the matter will be presented to the Kansas Legislature. The commission took immediate action and issued an order suspending special permits for the operation of trailers used in transporting new automobiles.

Following the issuance of this order, a delegation of commercial truck operators and manufacturers of trailers appeared before the commission to protest. A spokesman for the truckmen asked the commission to authorize the use of 60-foot trailers "until the present equipment is worn out." The truckmen, he said, have invested thousands of dollars in trucks and trailers to do this work.

Governor Reed's letter to the Commission follows:

"The problem of the use of highways by the long trailer-trucks and oversized vehicles has become a question of serious moment, it seems to me, to the people of the State.

"I suggest that your Commission institute a very thorough study of the whole problem of the regulations of this class of transports for the purpose of submitting your views for the guidance of the coming session of the Legislature for such legal action as is necessary to protect the public interest.

"Two problems are involved in this situation:

"First: That of public safety. I have received many complaints and numerous expressions from citizens of Kansas who believe that the long trailer-trucks and over-sized vehicles have made the use of the public highway extremely hazard-

ous to the traveling public. The people of Kansas construct our highway system for their own convenience and necessity without the thought of having these highways commercialized. The reasonable use of the highways for heavy traffic cannot be questioned as a matter of public policy perhaps, but the regulation of such traffic in the interest of both public convenience and public safety is a matter of first concern to the State.

"The second problem is a question of the effect of such heavy traffic upon the highways that have been built at public expense; whether or not these heavy vehicles are paying to the State for the use of the roads fees commensurate with the damage done to the roads and bridges over which they travel.

"I invite your attention seriously to these two phases of the subject with the suggestion that whatever action the next Legislature desires to take in the matter, it will have as a basis for such action the result of your investigation and analysis."

Motor Transport Division Meeting November 11-13

(Continued from page 910)

Rail-Motor Car Section

(E. Wanamaker, Chairman, Rail-Motor Car Section, Presiding).

Reports will be presented as follows:

1. Report of Rail-Motor Car Committee.
2. Rail-Motor Switchers.

Boston & Maine Develops Its Special Party Service

Efforts of the Boston & Maine to develop its special party motor coach business are indicated by the attention which this subject is given in recent timetable folders issued by the company.

On one of these folders attention is called to the fact that special parties may be accommodated at reasonable rates, while on each of two others a page is devoted to the subject. This latter calls attention to the fact that motor coach service for special parties is available at any time, anywhere. It is pointed out that "Clubs, lodges, athletic teams and other organizations find transportation by special party motor coach most convenient. Door-to-door service—low in cost—eliminates travel worries and saves time and effort. During the past year, Boston & Maine Transportation Company motor coaches ran over 150,000 miles on special party work; the shortest trip was less than one mile, the longest, over 7,500 miles. Parties varied in size from 15 people to 500."

3. Relative Cost per Square Foot per Mile of Revenue Floor Space, as between Motor Trains and Highway Vehicles.

4. The Rail-Motor Car from the Traffic Standpoint.

SECOND DAY

Wednesday, November 12.

Motor Coach Section

(P. J. Neff, Chairman, Motor Coach Section, Presiding).

Reports will be presented on the following subjects:

1. Can motor coach service be profitably substituted for branch line passenger service?
2. The trend and extent of long haul bus transportation as compared with long haul rail transportation.
3. The approximate total cost per bus mile of operating short and long haul runs.
4. Steps which should be taken to regain passenger traffic.
5. Sale of interline motor coach tickets.

THIRD DAY

Thursday, November 13.

Motor Truck Section

(R. K. Stackhouse, Chairman, Motor Truck Section, Presiding).

Reports will be presented covering development of results of the several experiments on methods used by the railroads to meet motor truck competition, i.e.:

1. Use of shipping containers.
2. Use of subsidiary or contract trucking companies, with published tariffs, which include pick-up and delivery service, the traffic being handled over the rails of the carriers.
3. Engagement of the carriers in over-the-highway motor truck transportation (either directly or indirectly).

Traffic Report Feature of N.A.M.B.O. Meeting

(Continued from page 911)

Inc., Cincinnati, Ohio; J. L. Gilmer, Camel City Coach Company, Winston-Salem, N. C.; Guy A. Huguelet, Consolidated Coach Corporation, Lexington, Ky.; W. G. Fitzpatrick, Eastern Michigan Motor Buses, Detroit, Mich.; C. G. Moore, United Motor Coach Company, Chicago; R. W. Budd, Northland Greyhound Lines, Minneapolis, Minn.; Moss Patterson, Oklahoma Transportation Company, Oklahoma City, Okla.; T. B. Wilson, Pacific Greyhound Lines, San Francisco, Cal.; W. T. Crawford, Columbia Gorge Motor Coach System, Portland, Ore.

Regulation and taxation were important subjects on the program of the association. R. W. Keenon, chairman of the committee on taxation reported that the courts have held that motor coach operators can be assessed for wear and tear of highways caused by their operations. He suggested that motor coaches should be taxed, first, through the gasoline tax; then, if necessary, through a seat-mileage tax; and third, through a franchise tax to be paid in return for the privilege of operating as a common carrier on the

public highways. There was extended discussion of the status of legislation pending in congress which would regulate interstate motor coach lines. It was pointed out by the legislative committee that there is considerable opposition to this pending legislation in the Senate, and that its passage cannot be expected unless considerable pressure is put behind the bill. Lack of regulation of interstate lines is damaging the motor coach industry according to T. L. Tallentire, vice-president and general counsel of Interstate Transit, Inc. Federal legislation for the regulation of interstate lines is necessary to the successful continuance of interstate motor coach operation, he concluded.

Modern developments in motor coach maintenance were described by H. B. Hewitt, assistant vice-president in charge of operation of Mitten Management, Inc. Motor coach advertising and traffic development were discussed in a paper presented by W. C. Beaumont, advertising counselor of the Pickwick-Greyhound Lines. The committee on equipment development described the larger and most powerful motor coaches now available. The committee on operating practice and costs presented a set of rules for the guidance of operating and terminal employees which were approved by the association.

The twelve recommendations presented by the special traffic committee of which L. D. Koller, Greyhound Management Company, is chairman, are as follows:

1. *Reduced Rates*—That clergy, charity, disabled veteran and other reduced-rate matters be left to the discretion of the individual lines, and that no attempt be made at this time by the association to establish uniform rules or recommendations to govern this type of transportation.

2. *Compensation Allowed Commission Agents*—That a proper and compensatory commission should be paid to ticket brokers and commission agents in a sum not in excess of 10 per cent of the gross amount of ticket sales, and that no commission will be paid to a commission agent or ticket broker or connecting carrier, directly or indirectly, through subsidy or otherwise, in excess of 10 per cent of the amount of the ticket sales made by such agent, broker or carrier as compensation for making such sales, including the expense thereof, over its lines or the lines of other carriers.

That carriers should not knowingly honor tickets issued by other carriers for transportation over their lines, and should not knowingly grant or pay commissions to other carriers for the sale of interline tickets where a commission in excess of 10 per cent has been paid, or is being paid, by such other carrier upon the sale of tickets for transportation over its lines.

3. *Passes to Commission Agents*—That carriers should not issue free transportation to commission agents located in territory served by competitive motor coach companies.

4. *Exchanges of Passes and Reduced Rate Orders*—That no carrier issue free

Colonial Stages Purchases Atlantic & Pacific Stages

The Colonial Stages of Cincinnati has purchased the Atlantic & Pacific Stages, according to a recent announcement. The combined system, it is planned, will serve practically all cities from coast to coast and from the Gulf to the Great Lakes.

The announcement also said that a \$500,000 order for new motor coaches was contemplated and that O. W. Townsend, president, and P. F. Black, vice-president and treasurer of the Atlantic & Pacific Stages, will retain their offices and will become officers and directors of the combined company.

These two independent operators which now combine recently entered an agreement with the Reading Transportation Company and the Jersey Central Transportation Company, highway subsidiaries respectively of the Reading and the Central of New Jersey, providing for the interchange of motor coach passenger traffic. This agreement with the railroad operators was outlined in the *Motor Transport Section* of July 26, page 214.

or reduced rate transportation to employees of another carrier except when the request is placed through the general office of the carriers. The local free and reduced-rate situation should be left to the option of each carrier in so far as it affects persons other than commission agents.

5. *Stop-Over Privileges*—That stop-over privileges be granted at division points, junction points, and at one other intermediate point on each division.

6. *Transportation of Pets*—That dogs, cats, and other live animals should not be carried inside the motor coach when traveling between points on the lines of more than one carrier.

7. *Notice of Discontinuance of Services of Commission Agents*—That all carriers arrange to notify all other interested carriers when they have discontinued a commission agency.

8. *Honoring of Interline Tickets*—That when a ticket carries a specific routing, it will not be honored by a carrier other than the one shown thereon, unless the diversion be approved by an authorized agent of the carrier over whose line the ticket was originally routed, or by an authorized agent of the selling carrier.

9. *Interline Reclaim Settlement*—That all reclaims be made against the selling carrier, and that the selling carrier adopt a ticket system that will provide for a coupon for each carrier participating in a joint haul, and that carriers pay reclaims "as made" and rebill for all errors, except when errors amount to more than 10 per cent of the amount of the reclaimed

settlement. It is further recommended that settlements on interline reclaims be made within 30 days.

10. *Refunds*—That refunds be made by the issuing carriers only, except that when a portion of an interline ticket has been reissued, the selling company may, when it so desires, refund both on its own issue and on the reissued coupon.

11. *Bus Guide*—That the association approve of a bus guide. Due to the high standard of the guide maintained by Russells' National Motor Bus Guide, it is recommended that this publication receive the endorsement of this association.

12. *Rate Structure*—That all carriers endeavor to maintain a just, reasonable and compensatory rate structure, and that the carriers will not, directly or indirectly, through subsidy, granting of free or reduced rates, or in any other manner, defeat the intent of the recommendation.

Road Congress Urges Transport Co-ordination

(Continued from page 911)

terminals in large cities. The passenger traffic created is both short and long haul, but the motor-truck traffic is in general short haul. It must be observed trucks operating over good highways act as agencies for gathering freight which serve to increase the productivity of the farming areas and relieve the railways of short-haul freight upon which little or no profit could be made.

10. Common-carrier truck operations as a whole, have not been profitable, due to the competition of private and contract trucks. Common carriers of freight on the highways handle such a small part of the total traffic that the field does not appear sufficiently attractive for railways as a general proposition.

11. Traffic surveys, including studies of origin and destination of traffic, are of special value in revealing the true characteristics of various kinds of motor traffic and their relationship to other forms of transportation, whether as feeders thereto or supplementary thereof.

12. Highway transportation enterprises should be financially self-sustaining. Monetary subsidies on the part of the State or of private interests should arise only in the opening up of certain regions or sections of country which are destitute of traffic. Otherwise, the motor vehicle should be in position to bear its own expenses and taxes in so far as they may be considered fair to the motor vehicle. This is true in particular with reference to the contribution for the maintenance of roads which the motor vehicle makes by the payment of motor vehicle taxes, including gasoline taxes or duties.

13. Taxes for highway purposes should be borne not only by motor vehicles but by all interests which benefit from the highway system, and should not be such as would arbitrarily prohibit the use of highways.

14. Co-operation between railroads and automobiles, which has already been effected to some extent, is one of the great requirements of the age. In seeking such solutions the need of aviation by the provision of airdromes and roads leading to them must not be overlooked.

15. It is desirable for the convenience of the traveling public that there should be standard dates (with the minimum of exceptions) for new time schedules in public-road services, and that there should be universal as well as regional roadway time-tables.

16. The Congress, considering that the question relative to the co-ordination of the various methods of transportation has received formal consideration at the International Congress of Railroads held in Madrid, May 5-15, 1930, under the title "Competition Between Automobile Transportation Systems and Railroads."

Not being able to proceed to the thorough study required by an examination of the conclusions of the Madrid Congress.

Resolves, that hereafter, the question of establishing co-ordination and harmony between the various systems of transportation by road, by rail, by waterways, and in the air, be considered by the various international congresses that may be called upon to deal with it, and that reports be prepared by joint commissions of the accredited representatives of these various systems of transportation.

Orders for Equipment

THE PACIFIC ELECTRIC, subsidiary of the Southern Pacific, has accepted delivery of 12 urban type Twin coaches.

THE MISSOURI PACIFIC TRANSPORTATION COMPANY has accepted delivery of four A.C.F. 29-passenger parlor type motor coaches.

THE ALTON TRANSPORTATION COMPANY, highway subsidiary of the Chicago & Alton, has accepted delivery of one A.C.F. 21-passenger parlor type motor coach.

Among the Manufacturers

The Automotive Products Company, distributors in Great Britain and Continental Europe, exclusive of Russia, for the Hercules Motors Corporation of Canton, Ohio, is now located at Brock House, Langham St., London, W. 1., England.

The Autocar Company has opened a new direct factory branch at 87 South Kensico Avenue, White Plains, N. Y. The new branch will be under the supervision of Crawford Brown, manager of the Autocar branch in the Bronx, New York City and will be the headquarters of Lee Baker and R. J. Baker, Autocar representatives in the White Plains district.

J. A. Donnelly, manager of corporation sales for the Diamond T. Motor Car Company, with headquarters at Chicago,

has entered the service of The Autocar Company as manager of its branch in Chicago. From 1919 to 1923, Mr. Donnelly was manager of the branch office of the Mack Truck Company at Minneapolis and St. Paul, Minn., and in the latter year he was transferred to a similar position in the office of that company at Chicago, in which capacity he served for more than five years.

L. O. Arringdale has been appointed assistant sales manager of the Hunt-Spiller Manufacturing Corporation, in charge of the industrial, automotive and marine departments, and Gordon L. Leach has been appointed mechanical representative of these departments.

W. E. Holler, eastern regional sales manager for the Chevrolet Motor Company at Buffalo, N. Y., has been appointed general sales manager with sales jurisdiction over the Eastern half of the United States succeeding J. C. Chick, who was recently transferred to the Cadillac division of the General Motors Company as sales manager. W. M. Packer, zone sales manager at Los Angeles, Cal., has been appointed to succeed Mr. Holler as eastern regional sales manager. P. F. Minnock, zone sales manager at Minneapolis has been transferred to Los Angeles, succeeding Mr. Packer. G. I. Smith, zone sales manager at Davenport, Iowa, has been transferred to Minneapolis, succeeding Mr. Minnock, and is in turn succeeded by F. N. Phelps, city sales manager at Cleveland.

Motor Transport Officers

T. Finkbohner who has been in charge of the schedule department of the Pacific Greyhound Lines since the formation of that company early this year, was appointed superintendent of transportation effective October 1, and in his new position he will have complete charge of arranging schedules and services of the entire system of the

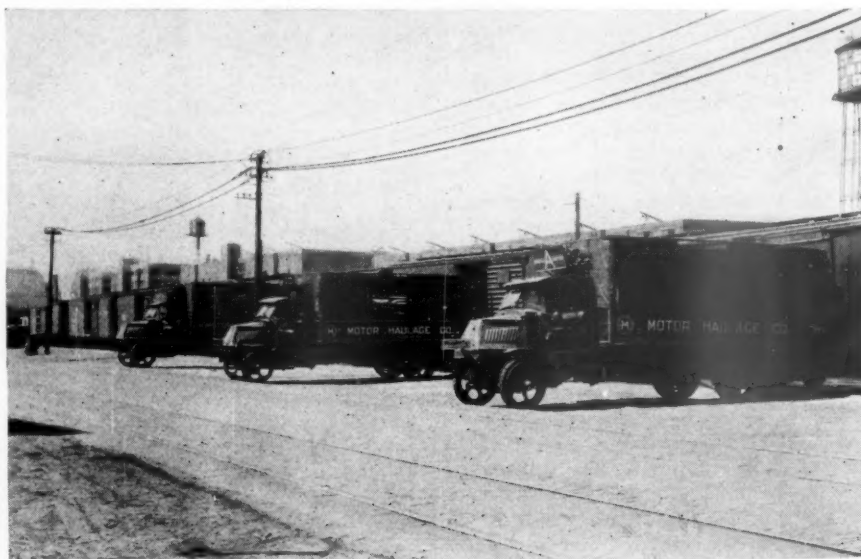
Pacific Greyhound Lines from Portland through San Francisco and Los Angeles to El Paso and Salt Lake City. Mr. Finkbohner commenced his transportation career in 1912, in the office of the Stockton division of the Southern Pacific. In the succeeding years he filled successively positions of as-



T. Finkbohner

sistant chief clerk and chief clerk on both the Stockton and San Joaquin divisions and assistant trainmaster on the latter division. In 1929, he became interested in motor coach operation and then entered the service of the highway subsidiary of this road, the Southern Pacific Motor Transport Company, as supervisor. At one time he was connected with the California Transit Company and also the Pacific Transportation Securities, Inc., the predecessor of the Pacific Greyhound Corporation, as special representative of the president.

M. E. Sheahan has been appointed assistant auditor of the Pacific Greyhound Corporation, Pacific Greyhound Lines, Inc., Pacific Greyhound Lines of Texas, Inc., Union Auto Transportation Company and the California Parlor Car Tours Company. His headquarters will be at San Francisco, Cal.



Motor Trucks of the Motor Haulage Company in Freight Service of the Long Island Railroad